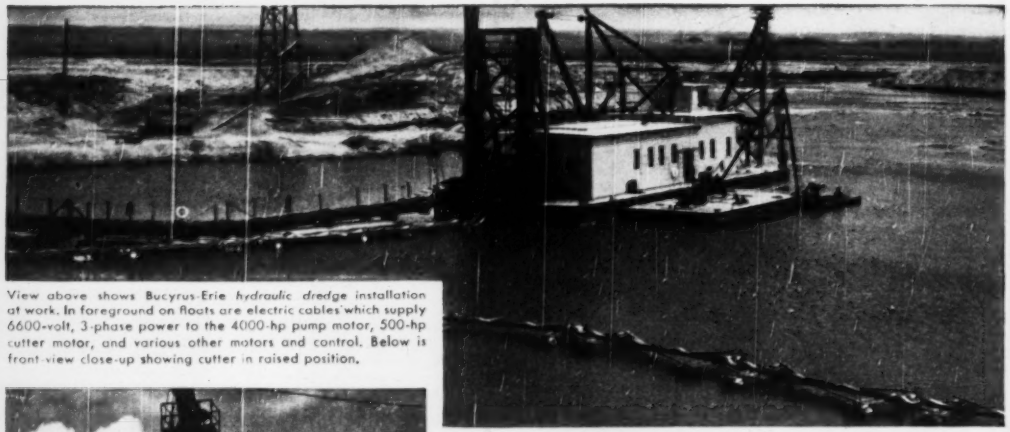
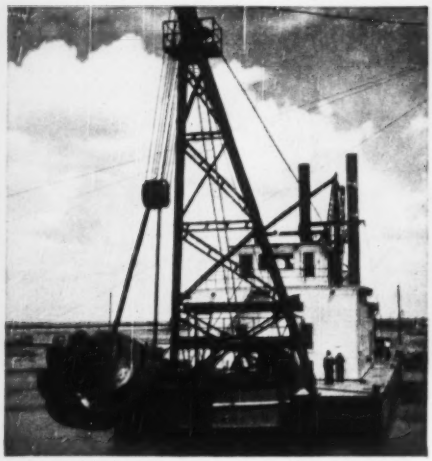
ENGINEERING NEWS-RECORD

A McGRAW HILL PUBLICATION



View above shows Bucyrus-Erie *hydraulic dredge* installation at work. In foreground on floats are electric cables which supply 6600-volt, 3-phase power to the 4000-hp pump motor, 500-hp cutter motor, and various other motors and control. Below is front-view close-up showing cutter in raised position.



Inside, these hoist cable drums are driven by G-E motors. After ten years of rough duty, this fully electrified dredge continues to give top performance for its owners.

Vacuum-cleaning RIVERS ... *Electrically*

This electrically driven hydraulic dredge is a pretty rugged looking "vacuum cleaner." But biting into and sucking up river bottoms is a rugged job—though it does require accurate control. That's why Bucyrus-Erie uses *electric drives* in most dredge installations.

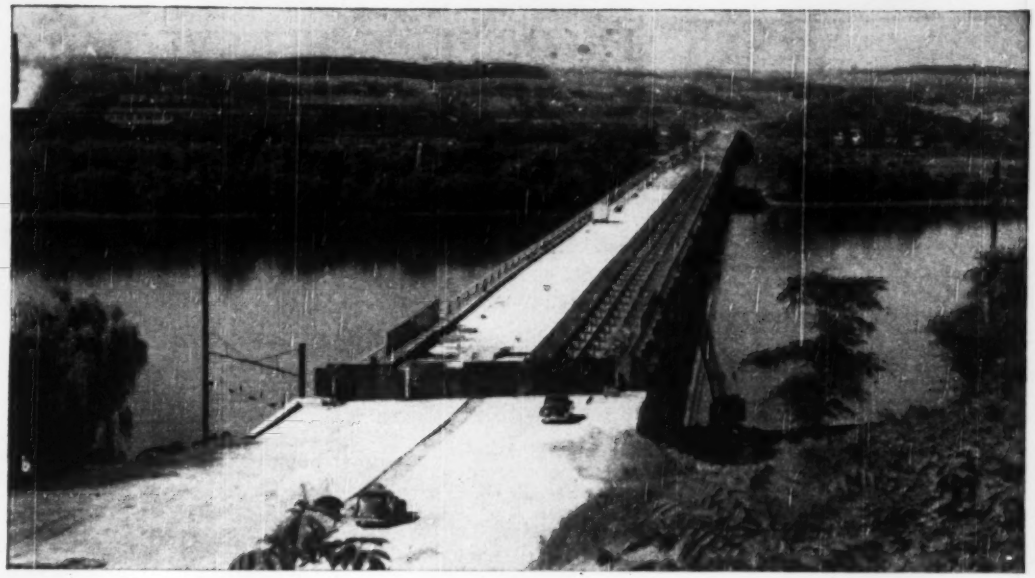
Electrified construction equipment is being used more and more to handle difficult jobs—jobs that require smooth, completely dependable operation. With G-E power distribution systems supplying the voltage and G-E motors and control driving your equipment, you are assured of all the benefits of electrification plus G-E engineering assistance in application, installation, and service wherever the job may be. *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*

Ask him Today!

Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.

GENERAL ELECTRIC

664-11



Turnpike Extension Crosses the Susquehanna

Stretching its steel fingers across the Susquehanna River below Harrisburg, this new structure is an important link in the 100-mile-long Philadelphia Extension of the famous Pennsylvania Turnpike.

It is a continuous girder bridge, 4526 ft long, consisting of 46 spans. Its 436-ft girders are continuous over four piers which are spaced at intervals of about 109 ft. The structure is 61 ft wide, and has facilities for four lanes of express traffic, plus walks for pedestrians.

Construction of the superstructure of the Susquehanna River Bridge involved the fabrication and erection of 6727 tons of steel, all of which was handled by Bethlehem.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

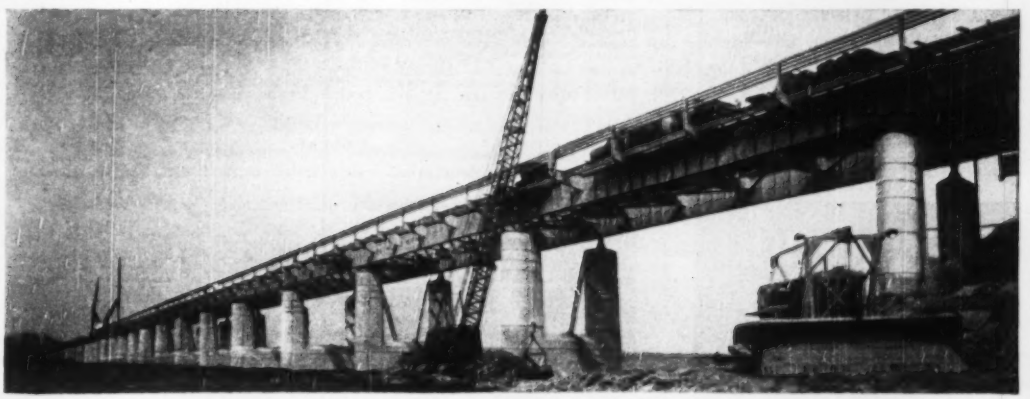
FABRICATED STEEL CONSTRUCTION

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Owner: Pennsylvania Turnpike Commission. *Designing Engineers:* Parsons, Brinckerhoff, Hall & Macdonald, New York. *General Contractors:* Booth & Flinn Company, Pittsburgh



BE ON THE LEVEL

WILD N III

Precision Level WILD N III. A modern fast-working level with highest obtainable accuracy. Height readings to .01 millimeter, also special execution available with reading directly to 1/1000th of an inch. The ideal job-doer for first order levelling, assembling heavy machinery, measuring deformations, verifying rises or depressions in buildings.

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 145 OCTOBER 5, 1950 No. 14

WALDO G. BOWMAN
Editor

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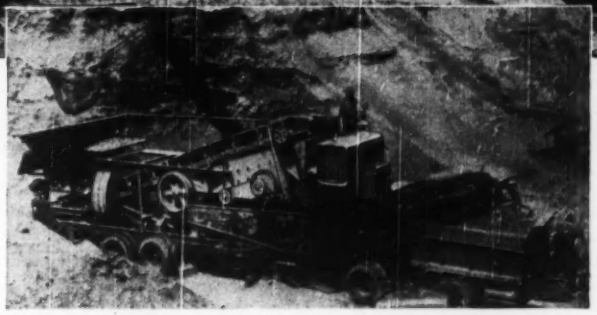
Greater Capacity-Lower Operating Costs

9-B TELSMITH Dual PORTABLE *(above)* with field conveyor and hopper, owned by Lyle J. Walker and operating near New Hudson, Michigan.

NEW 7-A TELSMITH Dual PORTABLE *(right)* with plant hopper, owned and operated by Tri-County Sand & Gravel Co., Pulaski, Wis.



Check these Telsmith advantages—

1. Greater Capacity because of 25% larger screen areas; and 25% larger capacity of rotary elevator with improved overhead drive.
2. Improved Transmission Equipment—(a) all main sprockets are now high carbon, heat treated steel; (b) all bearings are anti-friction type; (c) larger capacity, improved type Twin Disc Clutches with fully enclosed anti-friction shifting collars.
3. Easier Accessibility for adjustment and repair, with a minimum of under-chassis work needed.
4. Improved Control mechanism for easy operation.
5. Abrasion Resisting Steel of higher quality, at all points subject to wear.
6. Larger Under-Screen Hopper with steeper sides and easily accessible clean-out door.
7. Improved Larger-Capacity Receiving Hopper and feeding mechanism—with removable grizzly.
8. Six Adjustable Jacks are standard equipment on the new Model 9-C Dual Portable Plant.

Now Made in Two Popular Sizes

9-C Dual—with 10-in. x 36-in jaw crusher, 30-in. x 18-in. rolls, and 4-ft. x 10-ft. 2½-deck screen.

NEW 7-A Dual—with 10-in. x 30-in. jaw crusher, 24-in. x 16-in. rolls, and 4-ft. x 8-ft. 2½-deck screen.

Send for Catalog 276

P-16

SMITH ENGINEERING WORKS, 500 EAST CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Boehck Equipment Co. Milwaukee 3, & Green Bay, Wis. — R. G. Moeller Co. Detroit 27, & Kalamazoo, Mich. — W. B. Thompson Co. Iron Mountain, Mich. — Hawkeye Mchy. Co. Des Moines, Iowa — Smith, Inc. Fargo, N. Dak.

Rosholt Equipment Co. Minneapolis 6, & Duluth 7, Minn. — Empire Equipment Co. Sioux Falls & Rapid City, So. Dak. — Montana Powder & Eqpt. Co. Helena, Montana — Constructors Eqpt. Co. Denver 5, Colorado

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Spear Head Penetration Off the Road—

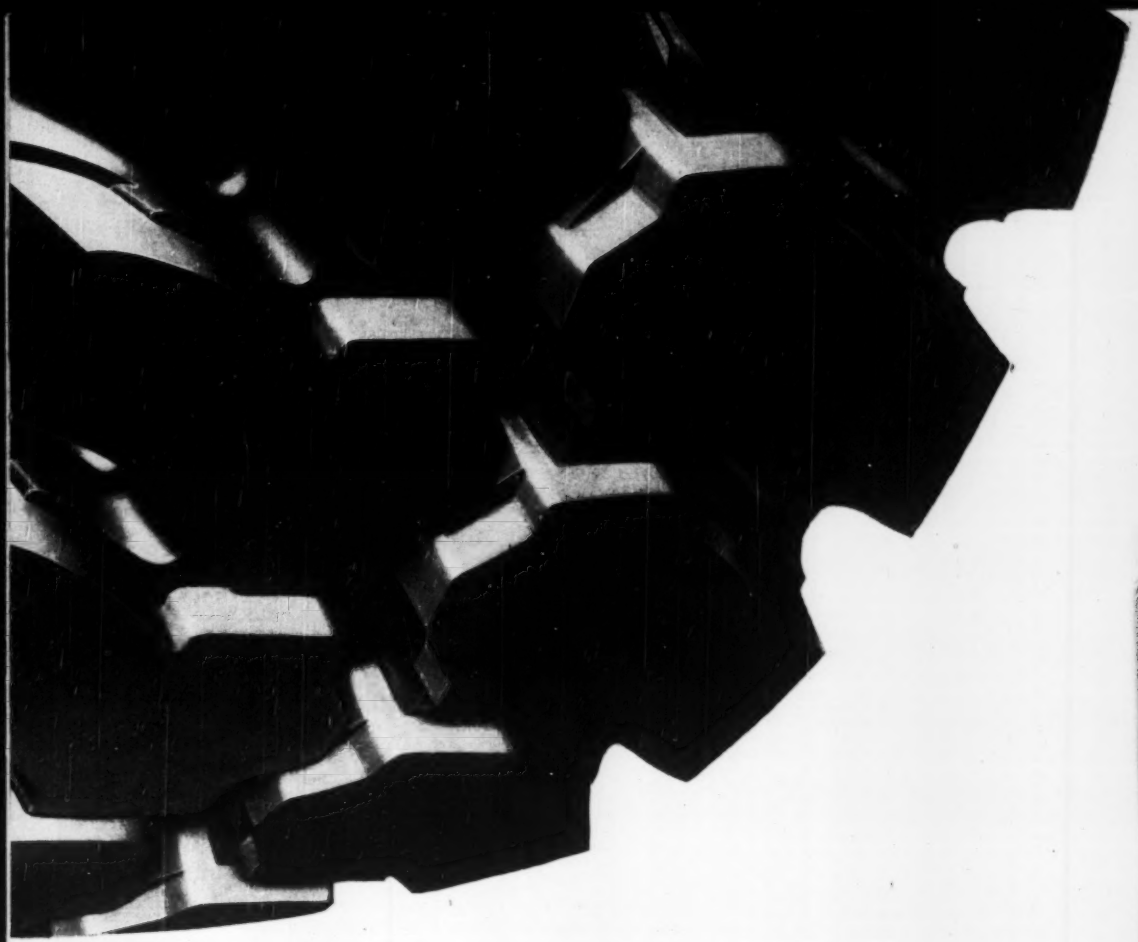
Mid-Century Truck Tires

Never Before! A genuine "on-and-off-the-road tire" for the Truckers of America!

Never Before! Job-fitted tread and side-wall compounds to meet the demands of every free-rolling, deep-traction truck service.

Never Before! Such traction and rolling for these varieties of truck service—to radically cut ton-mile transportation costs.

UNITED STATES



-with smooth Non-Skid Highway Rolling

"MADE-TO-ORDER" for the Construction Industry!

- **Over sharp-edged slag . . .** to smooth-surface rolling!
- **Through boggy marshland . . .** to mainline routes!
- **From muck-filled pits . . .** to high-speed highways!
- **Through hub-deep mud . . .** to asphalt and concrete!

TODAY'S SUPREME TRUCK TIRE WITH HIGHWAY AND OFF-THE-ROAD TRACTION
never possible before!

- ★ *Job-fitted tread and sidewall compounds*
- ★ *Free-rolling tread surface*
- ★ *SPEARHEAD depth traction*
- ★ **NON-SKID** ★ **CHIP-RESISTANT**

A PHONE CALL DOES IT! This is another U. S. Rubber achievement—without rival, imitator or comparison. Phone your nearest U. S. Royal Dealer for Complete Performance Proof and your own JOB-FITTED SPECIFICATIONS.

RUBBER COMPANY ***America's Largest Makers of Tires***

MODERNIZE and REDUCE COSTS

OF CONCRETE JOBS with Whiteman EQUIPMENT

If you're using hand methods in concrete work, you're behind the times. Modern, efficient, proven Whiteman equipment will speed up the job, greatly reduce labor costs and increase your profits. One Whiteman Power Buggy will do the work of *six* men. A Whiteman Flooring and Finishing Machine does the work of five men . . . and does it better. You just can't afford to be without this highly productive equipment in today's competitive market. Write today for prices, descriptive literature and name of your nearest distributor.

SWEEP FINISH—Whiteman Floating Machine's "fine" pulls sand for finish, makes dry rubbing unnecessary.

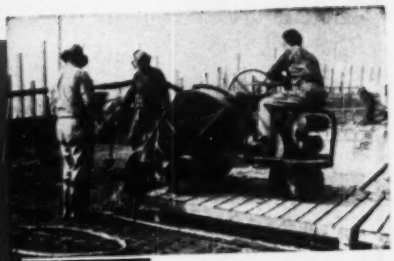
SCREED BLADE CAP—Holds screed blades on job. Extremely adjustable. Unnecessary to disturb slabs.

SCREED STAKE—All metal. Slide easily inserted in any soil condition. Many times up or down.

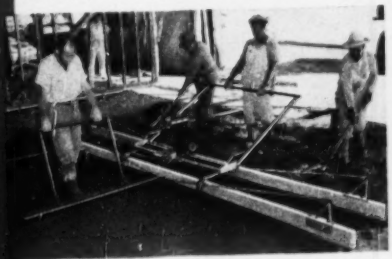
Whiteman

MANUFACTURING COMPANY

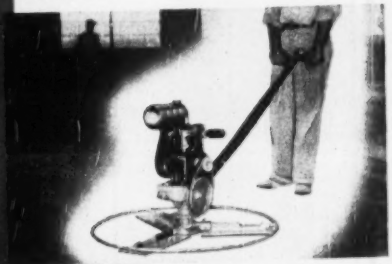
3249 CASITAS AVENUE • LOS ANGELES 39, CALIF.



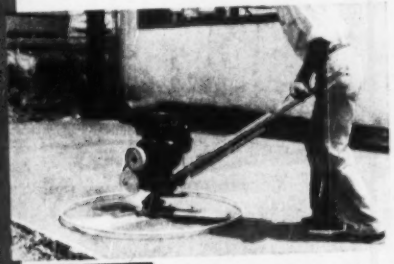
PLACING A Whiteman Power Buggy will carry as much concrete as six men with wheelbarrows and speed it up to 16 mph over soft earth, up 25% grades, to upper floors, over light scaffolds, through doorways. New dumping mechanism gives positive control of the dump. Powered by 7.5 h.p. 4-cycle air-cooled engine. Versatile, tough, dependable. Proved itself with large and small contractors for many years.



SCREEDING Whiteman Rodding Machine eliminates labor of hand screeding and greatly speeds operation. Rods the slab to a perfect level, puddles and vibrates the entire depth and area of concrete. Thoroughly compacts slab and brings moisture to surface for finishing operation. Rods up to 15-foot widths. 1½ h.p. gasoline engine.



FLOATING With float trowels attached, New Model B Whiteman Floating and Finishing Machine compacts the slab, drives out air pockets, brings up moisture and produces an excellent traction surface. Float trowels are easily snapped on or off in a few seconds . . . an *exclusive patented Whiteman feature* that is a great time saver.



FINISHING For finishing, the float trowels of the Whiteman Floating and Finishing Machine are quickly snapped off and the tool steel finish trowels are used. Pitch of trowels can be adjusted by control knob on handle while in operation . . . another exclusive Whiteman feature that gives a tremendous amount of time. New design base and improved heavy trowel arms assure perfect alignment of trowels.

"We Bought 5 Link-Belt Speeder Shovel-Cranes During the Past 5 Years"

The K-580 Link-Belt Speeder shown below is the latest machine purchased by Gil Wyner Co., Inc. This all-powerful shovel is the principal work horse on the Gil Wyner highway contract in Massachusetts.

The fourteen year old youngster below finds it easy to operate a new Model LS-51 with Speed-o-Matic hydraulic controls. He's already an "expert" operator, taught by an expert—his father, C. S. Lewis, northeastern representative for Link-Belt Speeder Corp.

"That's the best recommendation we know," says Mel Wyner, equipment superintendent for Gil Wyner Co., Inc., Boston contractors.

As your Link-Belt Speeder reporter, I stopped off in Boston to visit with Gil Wyner Co., Inc. After taking my action photos I talked with Mel Wyner about his Link-Belt Speeders, and his first words made the headlines of this ad. He continued:

"We bought our first Link-Belt Speeder Shovel-Crane — a K-360 — in 1946; and we've bought four more since then: a TC-70, an LS-85, another K-360, and this year a K-580.

"We like our Link-Belt Speeder Shovel-Cranes for their speed and ease of operation. All our operators on these machines have told us that Speed-o-Matic hydraulic controls have helped them make production records.

"My particular job has to do with maintenance. I found that Link-Belt Speeder Shovel-Cranes have mechanical features that are outstanding, and all parts are accessible for repair and maintenance — you don't have to tear the machine apart for any slight adjustment. We know that the Speed-o-Matic system is a good system; it operates with a minimum of maintenance."

He certainly said a page full.

12.092

LINK-BELT SPEEDER

LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS IOWA

Builders of the Most Complete Line of
SHOVELS-CRANES-DRAGLINES

HISTORY REPEATS!

It's "EUCS"

on the New Jersey Turnpike Now!

EUCLIDS

More than ten years ago Euclids were used by most of the contractors who built the Pennsylvania Turnpike. Now "Eucs" are working on the New Jersey Turnpike, 118 miles long and involving an expenditure of over $200,000,000.

The first contract was awarded in January, 1950 and completion of the 4-lane divided highway is scheduled for 1951. Already more than 100 "Eucs"—Bottom-Dumps, Rear-Dumps, Scrapers and Loaders—are being used by leading contractors who will move 11,000,000 cu. yds. of earth, sand and clay on their sections of the project.

Because Euclids get more work done at less cost—stay on the job with minimum down time—they are standard equipment on off-the-highway hauling jobs. Your Euclid Distributor will be glad to show you how Euclids can cut your hauling costs and increase your profits.

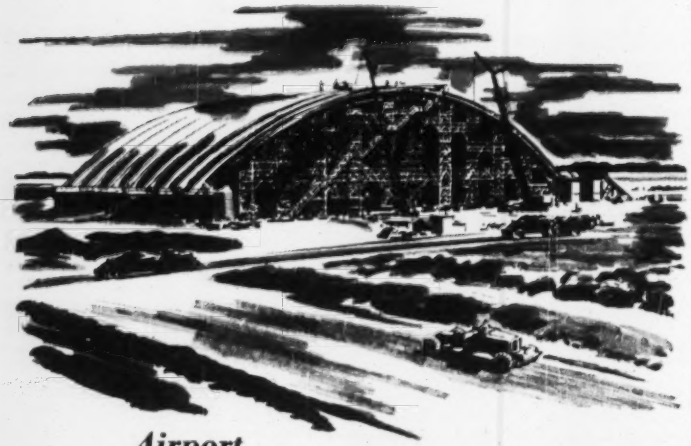
Over 100 "EUCS" on These Jobs!

The EUCLID ROAD MACHINERY Co.

CLEVELAND 17, OHIO

Cable Address: YUKLID Code: BENTLEY

Move the Earth



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or
Parking Lot

No job too big . . .
No job too small
for
Ætna Contract
Bond Service

The same experience and prompt, intelligent service which lead many of the nation's largest contractors to choose The Ætna Casualty and Surety Company are available to responsible firms of *any* size.

No matter who lets the contract, The Ætna's name on the bond commands immediate respect. No matter where the job is located, its representatives are close at hand to serve you well. No matter how complex are the problems involved, its underwriters are equipped to handle them quickly and intelligently.

These are only a few of the advantages you enjoy when you deal with one of the nation's foremost Sureties. Why not call on your local Ætna Casualty and Surety Company representative before you file your next bid.

Agents from coast to coast

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The Ætna Life Affiliated Companies write practically every form of insurance and bonding protection

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Automobile Insurance Company
Standard Fire Insurance Company

NEWS BRIEFS

Airport development—Governor Paul A. Dever of Massachusetts recently signed legislation authorizing a $2,850,000 bond issue for further development of the Logan International Airport in East Boston. (ENR April 20, Page 42). Included in the measure was a $250,000 appropriation for reconstruction of beaches destroyed in Winthrop by airport construction, and for dust-nuisance abatement.

Test for tampers—There'll be fewer wrinkles in Chicago's new asphalt pavements if the city's civil service commission has its way. It has just put 78 applicants for tamping jobs through what was said to be the first tamping "performance test" ever given. There are 30 jobs open at $15.80 a day. The test was conducted on a street being repaved. Each prospect tamped a 5-ft strip along the gutter. Grading was done with a bucket of water (proper drainage) and a ruler (evenness).

Baked Alaska—Wages went up, but so did prices. Contractors in Alaska granted generous wage increases this year, then raised the rates charged workers for board and room to $40 a week. When workers at Fort Richardson just outside of Anchorage decided food had not improved someone complained. Said the employees, the catering firm was not giving them variety in their food. In the resulting riot the military arrested nine men, fined three $100. Whether the menu has switched from ham, beans and rice (six days a week) is still to be determined.

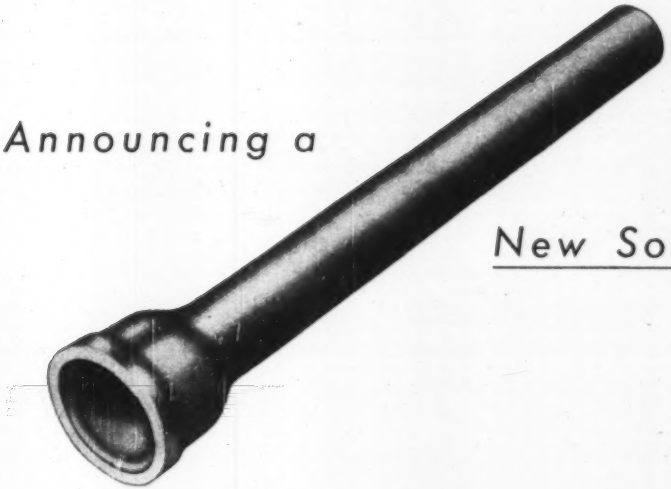
Life goes on with 30—Each resident of Los Angeles will have 30 gal of water a day for six months—all free of radioactivity—should any atomic bomb destroy the Colorado River Aqueduct and the Owens Valley Aqueduct. Source: existing wells. Sanitary engineers attending a two-day conference on handling radioactive wastes learned the good news from Ray L. Derby, Los Angeles sanitary engineer.

Packaged houses from Sweden—Assembled in Sweden from blueprints prepared in California, five packaged housing units of fir lumber have arrived in San Francisco. Their importer, William J. DeFremery, has 195 more on tentative order. Two-bedroom packages sell for $5,500, duty paid, and three-bedroom units

(*Continued on page 13*)

Announcing a

New Source* of



CAST IRON PRESSURE PIPE

Made by the Tried and Proven De Lavaud Principle

*A new source serving 9 states that operates its OWN ore and coal mines, makes its OWN pig iron, manufactures its OWN pipe

Lone Star Steel has every facility to bring you the highest quality Cast Iron Pressure Pipe for gas, water and sewer systems. It operates its own ore and coal mines. It makes its own high grade pig iron. These factors guarantee complete control of manufacture for uniformity and high quality. Lone Star Steel Cast Iron Pressure Pipe is centrifugally cast and annealled under Federal Specifications WW-P-421. It is non-contaminating, resistant to rust and corrosion, immune to heat and will last for centuries. Either plain or cement lined.

Lone Star's geographical location means a substantial saving to customers between the Rockies and the Mississippi in freight rates.

LONE STAR STEEL

LONE STAR STEEL COMPANY

The Only Cast Iron Pressure Pipe Plant between the Rockies and the Mississippi

Executive Offices
DALLAS, TEXAS

Coal Mines
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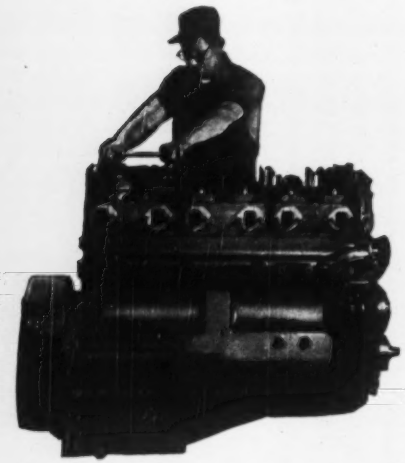
OKLAHOMA

Ore Mines, Beneficiation Plant, Blast Furnace, Coke Plant
LONE STAR, TEXAS

Cummins® Custom-built Diesels



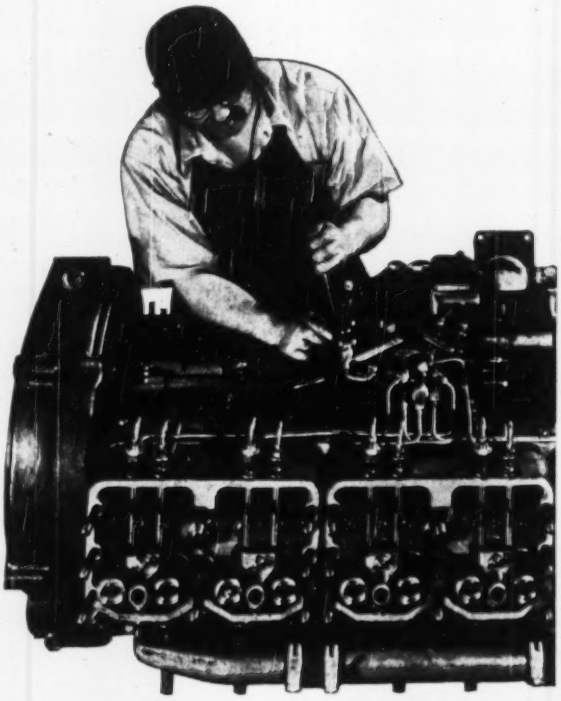
Built not once but Twice

The better-built engine for better power profits

Every lightweight high-speed Cummins Diesel is actually built *twice*. After initial assembly, each engine is run-in on the test block. Then it is torn down and carefully re-inspected — after that it is re-assembled and tested *again* to assure *peak performance*. And that is only *one* example of the extra care, the precision-workmanship . . . that goes into every Cummins custom-made engine.

That's why a Cummins Diesel is an investment that has *greater earning power* for you. The finest of engine-craftsmanship...exclusive Cummins fuel system...and custom-built engines "that fit your job" make a rugged, quality-engineered Cummins Diesel *the better buy for your power needs.*

Contact your Cummins dealer. He has more facts to show you about making more profits with



CUMMINS Diesel

Diesel power by **CUMMINS**

TRADEMARK REG. U. S. PAT. OFF.

CUMMINS ENGINE COMPANY, INC. • COLUMBUS, IND.

EXPORT: CUMMINS DIESEL EXPORT CORPORATION
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Lightweight High-speed Diesel Engines (50-550 hp) for: On-highway trucks · off-highway trucks · buses · tractors · earth-movers · shovels · cranes · industrial locomotives · air compressors logging yarders and loaders · drilling rigs · centrifugal pumps generator sets and power units · work boats and pleasure craft.

(Continued from page 10)

for $6,000. It will cost about $5,000 to erect the larger unit. The packages contain specially cut wood for the framework, window sashes and hardwood floors, veneered doors and cabinets, fully equipped bathroom and kitchen.

Weight control—Permanent weighing stations along the Buffalo-New York Thruway, to protect that future superhighway from damage by overloaded trucks, have been urged by a New York state assemblyman.

Technicality delays sewer—Sewerage plans for Ben Davis, suburb of Indianapolis, Ind., will be delayed for at least another year. The community's water conservancy district failed to meet tax law deadlines. The district was organized a few months ago after having been authorized by the 1947 General Assembly and having received approval from the Circuit Court to map sewer plans. But it did not notify the county auditor's office before Aug. 1 of plans to levy a tax. That date was the certification deadline for rates on assessed valuations. Consequently, tax rate sheets do not include the Ben Davis district despite a federal grant of $75,000 to plan the sewer system and a proposed public hearing to discuss levying a 5-cent rate on property in the area.

Waste disposal for mines—Eleven mines in the Iron Range of Minnesota have installed waste disposal plants this year, the state water pollution control commission has announced.

Water study—Ohio River Valley Water Sanitation Commission is proceeding with a two-week study of Ohio River water, to determine whether the watershed is suitable for industrial expansion, according to Edward J. Cleary, executive director and chief engineer. Samples and analyses are being made around the clock simultaneously at 32 stations, to study the quality of water and to evaluate the river clean-up program.

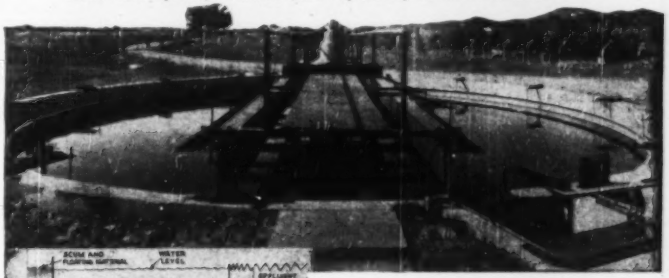
Successful turnpike—In July more than 500,000 motorists, truckers and bus operators paid the Pennsylvania Turnpike $922,623 as compared to $748,903 for the corresponding month of last year. According to reports for the fiscal year ended May 31, traffic mileage was as follows: passenger cars, 276,393,170; trucks 112,884,596 and buses 3,528,742. The total year's revenue from the 3,962,671 vehicles was $7,713,896.53.

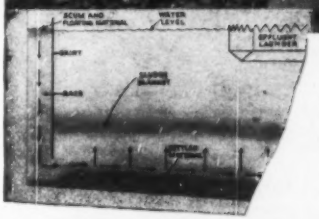
Establishing remarkable records for high purification at low cost—

YEOMANS "SPIRAFLO" CLARIFIER and "AERO-FILTER" SINGLY . . . OR IN COMBINATION

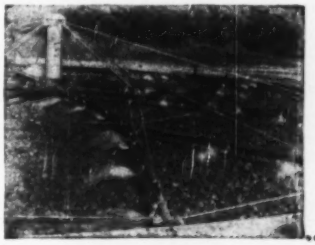
. . . especially in the treatment of strong industrial wastes

Low construction cost . . . low operating cost . . . high purifying efficiency: these are the characteristics of the Yeomans "Spiraflo" Clarifier and the "Aero-Filter System," whether used separately or in combination.





"SPIRAFLO" CLARIFIER—Unusual functional design makes this unit a highly efficient clarifier for use in trickling filter plants . . . eliminating several non-essentials that multiply construction and operating costs. Upward flow of influent through sludge blanket increases removal of settlable and suspended solids.



"AERO-FILTER SYSTEM"—Simplified design of this high capacity biological trickling filter cuts construction costs—reduces size of required filter bed by about 85%. High efficiency of single stage operation eliminates need of installing and operating expensive conventional recirculating equipment.

FIT ANY REQUIREMENTS—Overall plant efficiency is always higher when the two units are used in combination; however, plants using either type of equipment or the combination can be designed to fit any needs for treating domestic and industrial wastes.

IMPORTANT INFORMATION—Facts as to remarkable records established by Yeomans units will be helpful in your project planning. Bulletins containing performance data, field engineering data and construction cost estimates are available on request—use the coupon.

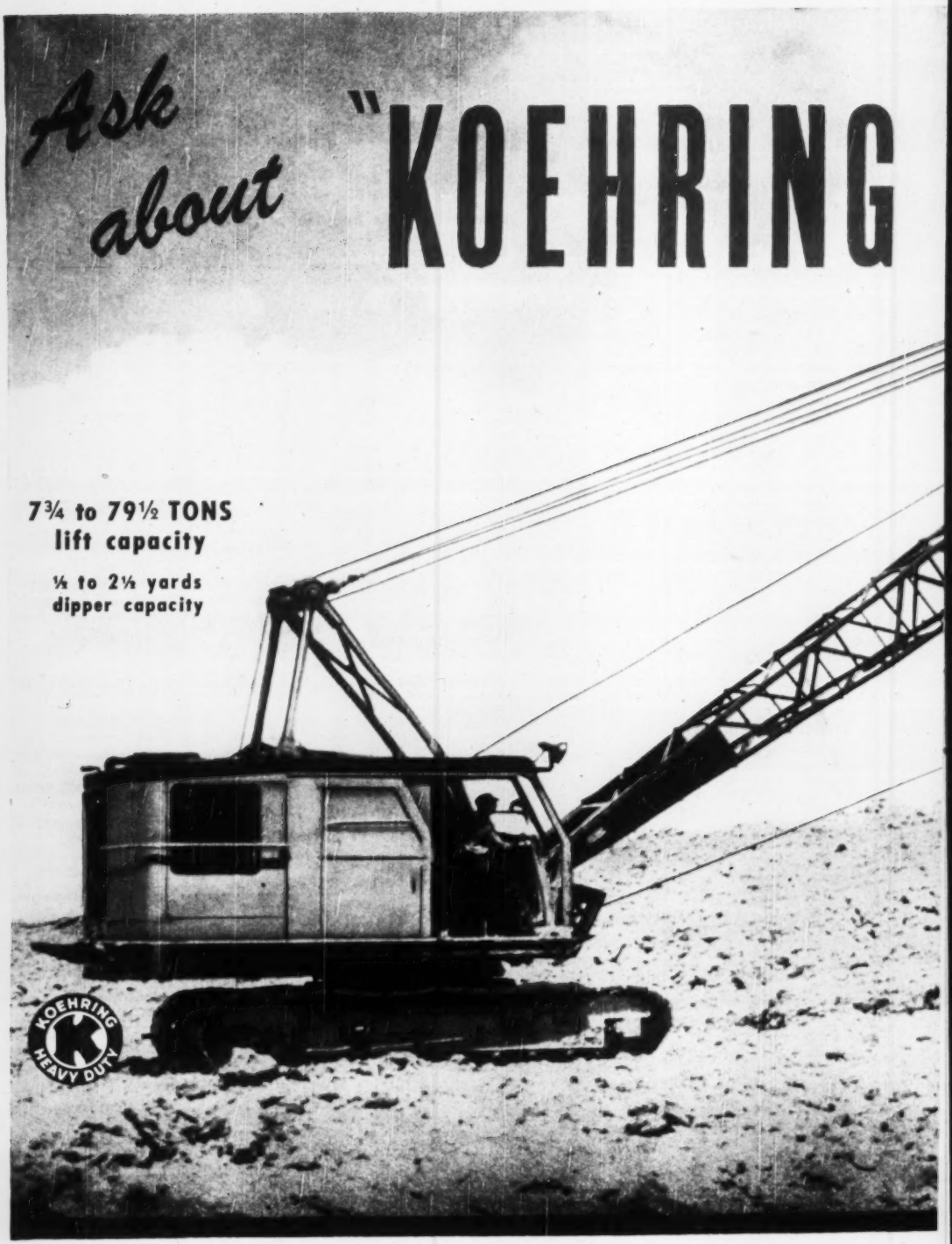
YEOMANS

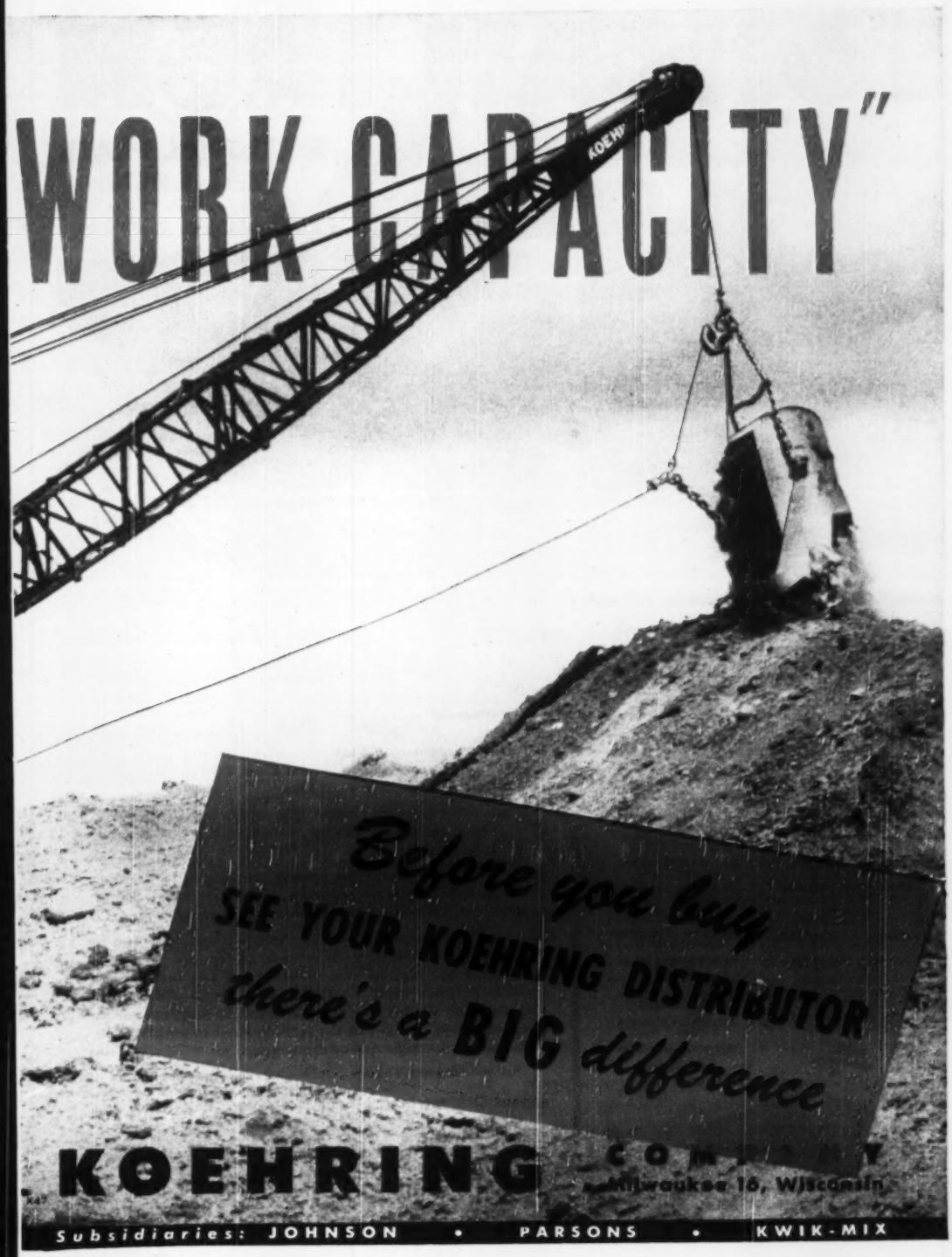
YEOMANS BROTHERS COMPANY
1445 North Dayton Street
Chicago 22, Illinois

Please send these bulletins:
☐ **No. 6570—"Aero-Filter"**
☐ **No. 6790 "Spiraflo" Clarifier**

Name _____
Company _____
Address _____
City _____ State _____

Ask about "KOEHRING

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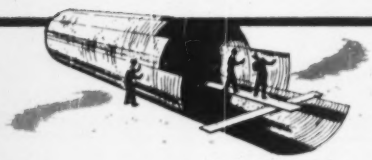
SEE YOUR KOEHRING DISTRIBUTOR
there's a BIG difference
KOEHRING
Subsidiaries: JOHNSON • PARSONS • KWIK-MIX

TONCAN IRON®

SECTIONAL PLATE PIPE-ARCH

Handles Fast Flow Where Headroom is Low



Manufacturers of Toncan Iron Drainage Products

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BERGER METAL CULVERT CO., INC.
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THE BOARDMAN COMPANY
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MINNEAPOLIS, MINN.
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M & H HIWAY MATERIALS CO.
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There's no need to sacrifice capacity flow where lack of headroom restricts the size of full round pipe. Simply use Toncan Iron Sectional Plate Pipe-Arch—and let its low, wide arch move water fast.

All plates and bolts are shipped "knocked down" in one lot. They're easy to handle, can be erected with unskilled labor in any kind of weather.

High strength and flexibility prevent cracking and crumbling under heavy loads—resist vibration, settling earth and weather changes. Special bolts and washers develop high seam strength.

Toncan Iron Sectional Plate Pipe-Arch is surprisingly low in cost per year of service. It's made of Toncan Iron—the metal with the highest rust-resistance of any ferrous material in its price class. That's because it is an alloyed iron and contains double the copper found in copper-bearing steels and irons PLUS just the right amount of molybdenum to bring out the full value of the copper.

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Toncan Copper Molybdenum Iron is available in:

CORRUGATED METAL PIPE • PERFORATED CORRUGATED METAL PIPE • SECTIONAL PLATE PIPE
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CORWEL SUBDRAINAGE PIPE • BITUMINOUS COATED AND PAVED PIPE

THE CONSTRUCTION WEEK

DISTILLATION OPPOSITION – Some Southern Californians are quietly opposing federal appropriations for studies on sea water distillation, on the ground that there is almost no chance of it ever competing economically with existing supplies. Besides, there is a belief that the mere making of such studies, even though chance of complete success is slim, will cloud issues in the Colorado River water fight.

HARBOR WORK DUE–Five giant ore boats now on the ways at Great Lakes shipyards will call for some U. S. Corps of Engineers civil work before the vessels go into service in 1952. They are to be 647 ft long, with 70-ft beam and 36-ft draft. Before these ships can be loaded to capacity it will be necessary to deepen connecting channels, harbors and slips.

HIGH-TENSION BOLTS–Steel frame for an office building under construction in Keene, N. H. perhaps is the first to use high-tensile steel bolts for permanent connections. Replacing field rivets in the design, nuts on ¾-in. bolts were given 473 ft-lb torque to establish 32,400 psi tension in the bolts. Advantages claimed over rivets include: Elimination of incapable rivets; tight joints; connection economy; and 50% noise reduction (impact wrenches turned the nuts; torque wrenches finished the job).

CEMENT SHORTAGE NOTES–In the New York HERALD-TRIBUNE a London, England firm is advertising rapid delivery of portland cement. . . . Federal figures on imports since Korea cover only July, when British cement accounted for most of $96,000 worth brought into U. S. . . . William Levitt, famous Long Island home-builder, says he is ordering an entire shipload of cement from German plants.

SCREEN PLAY? – Despite assertions by Boston's Metropolitan District Commission that it would investigate itself (ENR Sept. 28, p. 26), word is being passed around state-house circles that there'll be no investigation until after the November election. Moreover, commission minority member Harold E. Stevens charges that the majority refuses to let him see records that would indicate the truth or untruth of charges against the commission. Move for investigation came after three top engineers resigned because political payroll padding allegedy undermined morale in the construction department.

SUPPORT FOR POINT FOUR–Representative Jacob K. Javits, of New York, proposes a $10 billion loan program for backward nations, to finance basic developments that would create conditions favorable to private investment. The program would be administered by the International Bank for Reconstruction and Development. Loans, intended to make the Point Four program work, would be for long terms at low interest.

CONTROLS ALREADY TOO SEVERE?–Housing credit controls may reduce residential construction more than necessary next year, according to implications of a Department of Commerce report. Curbs on federal housing credit, in effect since July 19, could reduce 1951 volume one-third below the 1950 record, which is likely to be 1,250,000 starts. The report bases its discussion on government regulations already in effect, not speculating on the effect of further controls, like those on conventional mortgage financing.

BIGGEST MIDWEST HARBOR–Army engineers have placed an initial stamp of approval on long-range plans for construction of a $38,000,000 deep-water harbor and waterway for Lake Michigan, near Gary, Ind. If and when the St. Lawrence seaway allows ocean vessels to enter the Great Lakes, this port would be the only one capable of handling them.

CANADIAN CEMENT CONFUSION–It looks as if New Brunswick's prayer for better cement supply will be answered, although a mill may not be built there. St. John business men have given their blessing to a corporation that's ready to build; final arrangements depend on assurance by the provincial government that it will buy from the new mill. However, assurance is not forthcoming, and now another corporation is being formed – a subsidiary of the Montreal firm from which the New Brunswick provincial government regularly buys cement. The new corporation's capitalization – $1,250,000 – appears insufficient for cement-mill construction, may mean that only distribution facilities for New Brunswick.

TAX EXCESS PROFITS?–Government experts are beginning to think that an excess profits tax is not the answer to the problem of financing rearmament. The turnabout is based mainly on these two facts: (1) The excess profits tax is a short-run emergency measure; it won't work well over the ten years or so in which defense spending is expected to stay high. (2) It didn't raise much money during World War II. Whether the experts can convince Congress is another matter. They are pretty well committed to it.

BONDS VS. PAY-AS-YOU-GO–Answering charges that no Maine Highway Commission ever has advanced a long-range rebuilding program for an adequate highway system, the present commission's chairman, Lloyd B. Morton, says that the commission now is satisfied that savings in maintenance costs would more than offset interest charges on a bond issue large enough to modernize Maine's highways.

WALLACE & TIERNAN CHLORINATORS *are*

Standouts in any Plan

AN OIL REFINERY IN TEXAS needs cooling water chlorination.

A PAPER MILL IN WISCONSIN requires white water slime control.

A SWIMMING POOL IN CALIFORNIA wants chlorination to guard against water-borne disease.

A SEWAGE PLANT IN INDIANA needs chlorination for disinfection.

A CAMP IN VERMONT wants to sterilize its well supply.

A POWER STATION IN FLORIDA asks for chlorination to improve heat transfer in condensers.

Whenever and wherever the plans call for chlorination, Wallace & Tiernan Equipment stands out as the first choice of engineers and architects all over the country.

The reasons for this preference aren't hard to find because smart buyers know that with Wallace & Tiernan Equipment they get:

WIDE SELECTION—Wallace & Tiernan Chlorinators and Hypochlorinators come in a variety of models and sizes handling from ounces up to 3 tons of chlorine daily.

PROVEN EQUIPMENT—Manufactured in a modern, precision-conscious plant, every piece of Wallace & Tiernan equipment is thoroughly tested (before leaving the factory) for the actual job conditions under which it will operate.

EXPERT DESIGN—All Wallace & Tiernan equipment is the product of expert development by a top notch research group specializing in chlorine and chemical control equipment. This is the same group that has pioneered such famous developments as the Visible Vacuum Principle, Break-Point Chlorination, and Residual Recording during the last 35 years.

SERVICE—Wallace & Tiernan's nationwide service organization is ready to solve bacteria-induced water treatment problems, whatever they may be.

Call your nearest Wallace & Tiernan Representative for your next job involving chlorination. He will be glad to help you.

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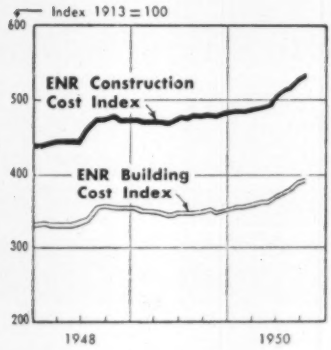
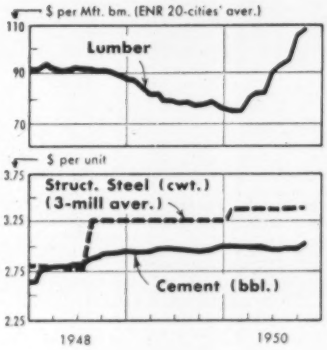
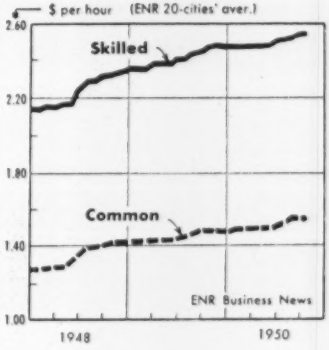
OCTOBER CONSTRUCTION BUSINESS REPORT





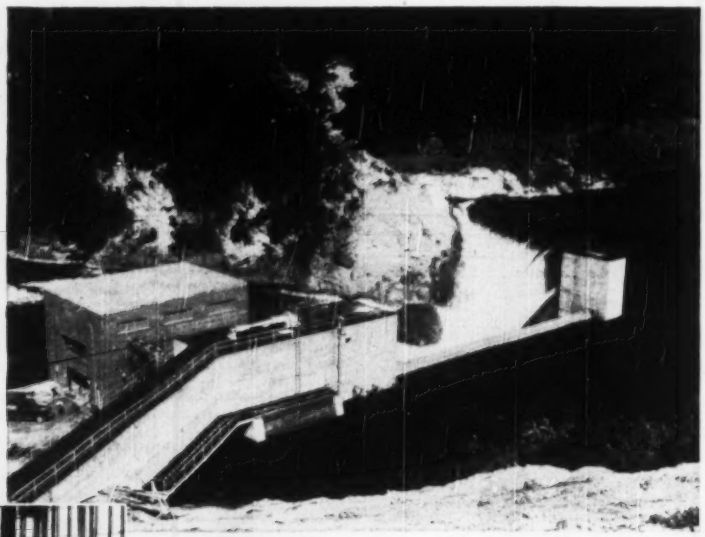


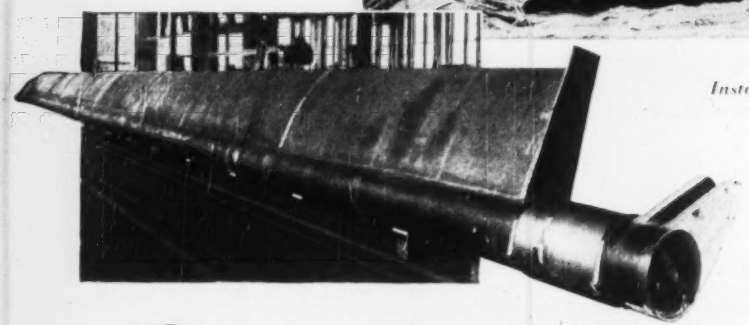
ENR INDEXES (1913 = 100)	Oct. '50	Sept. '50	% Change	Oct. '49	% Change
Construction Cost	534.44	530.37	+0.7	480.54	+11.2
Building Cost	396.23	392.81	+0.8	353.02	+12.2
MATERIAL PRICES (20-cities' average)					
Cement, bulk, per bbl	3.041	2.976	+2.2	2.945	+3.3
Structural Steel, (3-mill aver.), per cwt	3.400	3.400	0.0	3.250	+4.6
Sand, per ton	2.009	1.976	+1.7	1.993	+0.8
Lumber, 2x4 Fir, per M. ft. bm	115.373	114.094	+1.1	85.838	+34.4
Lumber, 2x4 Pine, M ft. bm	102.500	99.417	+3.1	75.583	+35.6
Common brick, per M	29.163	28.875	+0.9	27.763	+5.0
Ready-mixed concrete, per c. y	10.482	10.450	+0.3	10.279	+1.9
Structural Clay Tile, 3x12x12 per M	135.248	134.900	+0.2	131.474	+2.9
WAGE RATES (20-cities' average)					
Common	1.568	1.561	+0.4	1.478	+6.1
Skilled (aver. 3 trades)	2.565	2.554	+0.4	2.458	+4.3
Bricklayers	2.832	2.810	+0.8	2.721	+4.1
Structural Ironworkers	2.518	2.513	+0.2	2.420	+4.0
Carpenters	2.345	2.339	+0.2	2.236	+4.9

CONTRACTS AWARDED (thous.)	September 1950 (4-weeks)	September 1949 (5-weeks)	% Change†	Nine Months 1950	Nine Months 1949	% Change
Total U. S. (ENR reported)	$959,530	$810,309	+48.0	$8,964,416	$6,151,136	+45.7
Private	590,648	403,478	+82.9	5,226,398	2,888,916	+80.9
Public	368,882	406,831	+13.3	3,738,018	3,262,220	+14.6
Federal	41,754	105,423	−50.5	933,203	840,518	+11.0
ENR Constr. Volume Index, '13 = 100	390	291	+34.0	394	286	+37.8
NEW CONSTRUCTION CAPITAL						
Total	3,819,060	1,374,997	+247.2	7,157,184	4,980,988	+43.7
State & Municipal Bond Sales	229,684	202,568	+41.7	2,182,488	2,161,464	+0.9
Corporate Security Sales	104,013	165,652	−21.5	1,489,333	1,812,747	+17.8
Federal (non-federal work)	522,000	385,000	+35.6	522,000	385,000	+35.6
Federal (federal work)	2,963,363	621,777	+376.6	2,963,363	621,777	+376.6

MATERIAL SHIPMENTS & LABOR SUPPLY	August (A) July (J) 1950	August (A) July (J) 1949	% Change	Eight Months (8) Seven Months (7) 1950	Eight Months (8) Seven Months (7) 1949	% Change
Cement, thous. bbls., Bu. of Mines	23,167(J)	19,321(J)	+19.9	123,299(7)	109,621(7)	+12.4
Fabr. Struc. Steel, thous. tons, AISC	173(A)	184(A)	−5.9	1,240(8)	1,339(8)	−7.4
Lumber, mil. ft. bm., NLMA	3,265(J)	2,370(J)	+37.8	22,608(7)	17,032(7)	+32.7
Lumber Prod., mil. ft. bm., NLMA	3,339(J)	2,432(J)	+37.3	21,662(7)	17,482(7)	+23.9
Contract Constr. Employ., thous. BLS	2,589(A)	2,340(A)	+10.6	(Av.) 2,162(8)	(Av.) 2,110(8)	+2.5

† Computed on a weekly basis





Installation and shop views of Bascule type Crest Gates

Bascule Crest Gates *by* SMITH

Pioneering and constantly progressing, we now offer this new type gate which fills a long existing need in pond level and flood control applications. The Bascule Gate is, in essence, an automatic flash board, hydraulically or electrically operated.

This unusual gate is primarily designed and built in span and height for installations requiring greater spillway capacity or increase in pond storage above existing dam heights. Write us for data regarding our full line of gates and hoists.

S. MORGAN SMITH Co.

YORK, PENNA. U.S.A.

AGC Guide to Defense Work

THE ASSOCIATED GENERAL CONTRACTORS has just issued a statement by its Governing and Advisory Boards that proves that convention resolutions and manifestos need not always be windy and empty documents. Looking toward the possibility of a large volume of government defense construction on top of much essential civilian building, AGC recommends:

That fixed price contracts, awarded after competitive bidding, be used wherever practicable.

That the sellers of materials and machinery and subcontractors submit firm bids wherever possible.

That fair and just wages be paid workmen, and that all steps be taken to obtain greater production, compliance with wage agreements, settlement of jurisdictional disputes without work stoppage and provision of adequate trained apprentices.

That contractors be aided in keeping their organizations intact and in retaining ownership and operation of their equipment.

That government agencies adopt policies that cause the least possible disruption to normal practices and procedures.

These five simple statements form the best possible guide to maximum efficiency and economy in construction operations. The procedures that are urged are time-tested. They are the procedures that have made American construction accomplishments the envy of the world—and the ones that operated best in the last war. They are also procedures with which government construction officials and all elements of the industry are familiar.

Using the methods advocated by the AGC, the construction industry this year will record the greatest volume in its history. If the existing construction forces can be maintained at their present condition and strength, the nation's building needs—even if they must encompass facilities for both guns and butter—can be met.

What the AGC is saying is, "Don't look for something new and untried. What we have will do the job—any job that's now in sight—and do it quicker and more efficiently." It's good advice.

What Price Escalation?

IT WAS NOTED on the "Construction Week" page of our Sept. 14 issue that the Reading, Pa. architectural firm of Muhlenberg, Yerkes & Muhlenberg was offering an escalation clause to bidders on a county home and hospital of its design. Bids were requested, however, both with and without the escalation, and the results, now available, are unusually interesting.

The bidders—there were 5 on the general contract, 4 on plumbing and heating and 4 on electrical work—evaluated the danger of price fluctuations differently, as might be expected. Yet none of them reflected a fear of any runaway inflation.

The bids, with escalation, presumably represent what the contractors think they could do the job for, if prices remain stable at present levels. The escalation, tied to the ENR Building Cost Index, gives them protection against a price rise of 10%, but only one bidder used the entire 10% in setting his bid without escalation. A few added only 5%. The total of the low bids for the three classifications—general, plumbing and electrical—was $2,258,443 with escalation and $2,421,885 without, a difference of $163,442 or about 7%.

That the bid increases were less than 10% suggests that the fear of price rises is not as great as the architects thought it might be. Stated in another way, 7% is not large as contingency items go, suggesting that the contractors didn't take price rises too seriously in making up their bids without escalation. A saving of 7% to the owner is, of course, important, although it probably won't net that much after the costs of extra bookkeeping and the conferences that will be required to determine escalation are absorbed.

If one were to attempt a general conclusion it would be that the escalation clause is more of a psychological device than a money saver. In uncertain times, it makes contractors feel a little safer, a little more willing to bid. The owner will get more bids, perhaps closer ones—and that's about all that can be said.

Space for Healthful Living

SANITARY ENGINEERING can chalk up another victory in its relentless fight against disease: Sardinia, a fertile island in the Mediterranean, formerly riddled with malaria, is to become a population-pressure outlet for Italy. The aim is to re-settle about 1,000,000 people in Sardinia in five years. Such a development has been made possible by the Rockefeller Foundation's successful campaign in annihilating the malaria mosquito on the island (ENR Dec. 9, 1949 p 75).

Right now Rockefeller Foundation engineers are making a thorough survey of the situation to determine how many settlers can be safely handled and how much construction is needed. When this phase of the program is complete, it will be possible to make more definite plans for the great migration.

American engineers have played a vital part in the cleaning up of Sardinia. It now appears that they will be called upon—perhaps in greater numbers—to assist and guide in the regeneration of a poverty-stricken group of people. Such assistance will be a worthy contribution to Point Four progress.

ONE OF A SERIES DEMONSTRATING APPLIED LUKENOMICS

How to Hold "High Water" at Low Cost

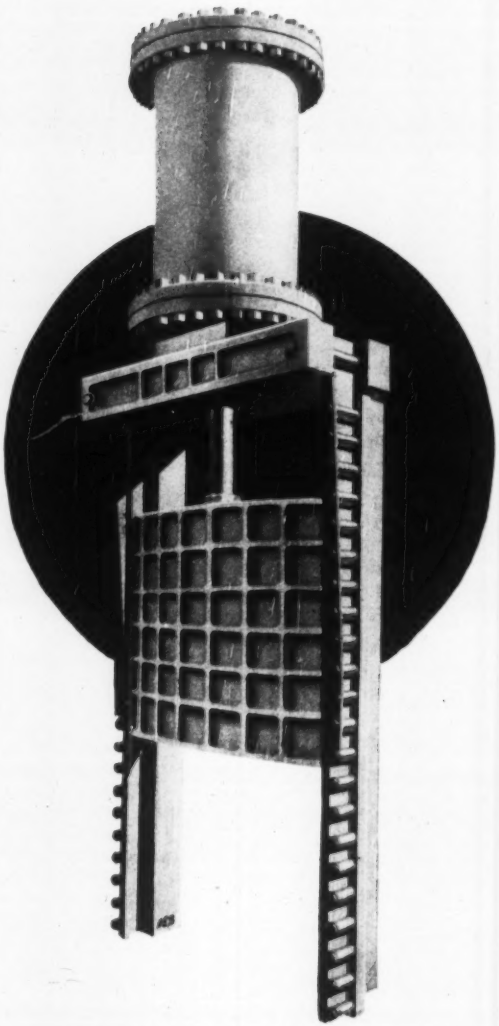
PROJECT: *To provide efficient operation of hydraulic sluice gates used for flood control and removal of debris from reservoir bottom. Must operate on water for economy, under 300 ft. of head.*

DESIGN: *Hydraulic hoist cylinder with sides of Lukens Stainless-Clad Steel and blind-flange ends of cast steel bolted on for ease of removal if necessary for maintenance. Smooth, sodium hydride finish on interior stainless surface of sides to resist corrosion from alkaline water in cylinder and thus prevent jamming of plunger. Low-cost steel backing to provide strength and rigidity for distortion-free service under pressure.*

END RESULT: *Economical initial cost; highly efficient operation; long, low-maintenance service life.*

Here is another instance where the coordinated ingenuity of designer, engineer, fabricator and materials supplier provided the economical answer to a mechanical problem. This is applied *Lukenomics*. For Lukenomics combines the experience of designers, engineers and equipment builders with Lukens' knowledge of materials and their application, gained over 140 years as the world's leading producer of specialty steel plates, heads and steel plate shapes.

It's sound investment insurance to put Lukenomics to work on your equipment problems. There are progressive fabricators who can do this for you. Get in touch with them, or write our Manager of Marketing Service, stating your problem. Lukens Steel Company, 513 Lukens Building, Coatesville, Pennsylvania.



The hydraulic hoist cylinders for the sluice gates at Pacoima and Devil's Gate Dams were built by the Willamette Iron and Steel Co. for the Los Angeles County Flood Control District. Type 405 Lukens Stainless-Clad Steel was used for cylinder walls because it gave solid corrosion-resistant metal protection with clad-steel economy.

We'll be at the National Metal Exposition in Chicago, Oct. 23-27, Booth 1625. Our Technical Staff will be on hand to greet you and help answer your problems.

LUKENS

LUKENS STEEL COMPANY

BETTER PRODUCTS FOR BETTER EQUIPMENT

ENGINEERING NEWS-RECORD

OCTOBER 5, 1950 VOL. 145 NO. 14

Calif. contractor groups sue independents on wage pacts

Charge non-members with taking unfair economic advantage by making separate agreements that destroy wage-rate uniformity, take labor from members

The nation's construction industry was carefully watching a court suit in California, wherein a group of contractor-employers filed suit against non-members of their organizations for alleged disruption of uniform area wage agreements with construction unions.

The suit was filed in Los Angeles superior court by the Southern California chapter of the Associated General Contractors, and the Building Contractors Assn. of California, against a group of 40 independent non-member contractors of the Home Builders Institute, Inc. and the United Brotherhood of Carpenters and Joiners. Trial date has been set for October 26.

It charges that the non-member contractors—who agreed to a "short form" of a master area employer-union wage contract—have disrupted the entire basic wage structure by paying carpenters in excess of the basic scale.

• **Seek injunction, damages**—The AGC chapter and its co-plaintiff seeks an injunction to prohibit the non-members from paying carpenters' wages higher than the basic $2.20 an hour. The suit alleges that the independents are paying carpenters $2.32½ per hour.

On this basis, AGC claims that the entire structure of its bargaining has been undermined, and asks damages totaling $15,000,000 for "deliberate and intentional injury."

• **Unfair advantage**—The attack, on the basis of an unfair advantage, was what attracted the attention of major employer groups throughout the United States. A favorable decision by the court would put a number of long, sharp teeth in such area-wide agreements as that recently approved by the New York Building Employers Trade Council and the New York Building Trades Council.

Basic to the suit is the origin and development of the Southern California agreement.

The original agreement dates back to 1941, when members of the San Diego and Southern California AGC chapters, the BCAC and labor unions in six Southern California counties made their first agreement, setting up wage scales, conditions of work, and the like.

Ever since 1941, the suit alleges, it has been the practice for the AGC and its co-plaintiff, to negotiate a new master labor agreement. Non-member contractors employing union labor—though not bound by the master agreement—have approved a "short-form" agreement which provided an identical wage scale with that of the master agreement.

AGC now charges that the non-member contractors breached the short-form contract "in order to withhold a supply of carpenters from those (contractors) bound by the master agreement," and, further, that the carpenters' union breached the master agreement in that it struck and refused to furnish carpenters to the AGC's members and the co-plaintiffs.

Thus, says AGC, non-members have an unfair advantage.

(Plaintiffs are also asking damages of $100,000 a day from the union, for each day that the strike continues.)

George J. Bott Appointed N.L.R.B. general counsel

George J. Bott, labor lawyer, received the Presidential nod last week when named by Truman to replace Robert N. Denham, former general counsel of the National Labor Relations Board.

Bott has been associate general counsel of the N.L.R.B. since September of 1948. Although formal Senate approval of the appointment will have to wait until Congress returns to Washington on Nov. 27, he takes over at once under his interim appointment.

The appointment unfreezes the machinery of the office of the general counsel, which has not been free to act since Denham's resignation.

Push steel, taconite expansion plans

Major programs involving the expenditure of hundreds of millions of dollars to expand U. S. steel capacity were in the works last week.

From Washington, Secretary of Commerce Charles Sawyer announced steel industry plans to step up annual production capacity by 1952 by 9,400,000 tons—or nearly 10%. Such a move would involve much heavy construction, and would bring the industry's capacity to about 109,963,000 tons.

Meanwhile, in the vast taconite deposits along the Mesabi range, other developments were going forward, as steelmen pushed plans for making use of this hitherto waste product (ENR Aug. 10, p. 112).

The Erie Mining Co. received approval from the Minnesota conservation commission to dig a channel between Upper and Lower Partridge Lake, along with various dams, spillways and pumps. A company-planned $150-million taconite development hinges on the project, which will supply 12,000 gpm of water. The plant under consideration would have a 2,800,000 ton capacity.

Meanwhile, huge deposits of taconite ore were acquired by the Republic and Armco steel corporations. Complete purchase of the Reserve Mining Co. by Republic and Armco now makes possible construction of a $60,000,000 processing plant near Beaver Bay, on north shore of Lake Superior.

SYMBOL WITH CHARITY FOR ALL

Wherever the red feather is seen, someone has given in support of one of the nation's community chests, the money going to the support of more than 15,000 health and welfare agencies.

This month the red feather is featured on the covers of all McGraw-Hill publications in support of a campaign aiming at a national total of $190,000,000 for the benefit of organizations such as the Boy Scouts, maternity homes, visiting nurses, family service, travelers aid, and many others.

Navy awards cost-plus-fee contract to speed $35-million rocket plant

Move does not mean policy change, Rear Adm. Jelley says; depot at Shumaker, Ark. to be completed by original contractor

Award of a $35,000,000 cost-plus-fixed fee contract last week by the Bureau of Yards and Docks does not mean that the Navy is swinging over to contracts of this type. Special conditions prompted the use of a fixed-fee contract for construction of additional facilities at the Shumaker, Ark., Naval Ordnance Depot—a $135-million project that was 60% complete when work was shut down at the end of War II, in August, 1945.

The new job went to the same joint contractors who had held the original contract: Winston Bros. Co., and C. F. Haglin & Sons, Inc., both of Minneapolis; Missouri Valley Constructors, Leavenworth, Kan., and the Sollitt Construction Co., Inc., South Bend, Ind.

These contractors were asked to continue the job for several reasons, Rear Adm. J. F. Jelley, Chief of the bureau, said. They made an excellent record on the original contract, they are familiar with the site, and they are able to move rapidly on an urgent construction job. Further, the joint firms still have many of the original supervisory force as well as records of the old project.

• **Terms from World War II**—Terms of the new contract are almost identical with those of fixed-fee contracts used in War II. They provide for second and third party equipment rentals and for purchase of new equipment with recapture option by the government—a feature that is generally repugnant to contractors.

About $35,000,000 worth of construction will complete the original installation for production of aircraft rockets at Shumaker. The present contract, however, does not mean the end of construction at the ordnance plant. Additional work may be awarded later, presumably by negotiation with the joint contractors on the ground.

Demand for aircraft rockets—to fill Air Force, Navy and Marine Corps requirements—increased sharply with the Korean conflict. A fixed-fee contract was the only practicable means of starting construction at Shumaker quickly. Several completed production lines have been in operation at that depot, but many structures had been left in unfinished, roughed-in condition.

• **Delay avoided**—Another important factor would also have delayed the taking of fixed-price bids. Advances in rocket and plant design since 1945 make it necessary to modify certain production facilities. Construction requirements have to be changed accordingly. Thus, fixed-price bidding would have had to await the completion of new drawings and specifications.

For these reasons, the Bureau of Yards and Docks departed from its fixed-price policy and let the contract on a fixed-fee basis, in order to get work started at once. Construction contracts at other sites in the continental United States will continue to be let on a fixed-price basis, so far as possible.

LIGHTER THAN YOU THINK—This all-aluminum highway bridge just completed at Arvida, Que., has been opened to traffic. The structure weighs 495,000 lbs less than a comparable bridge of steel, being made of an aluminum alloy. It is believed to be the first structure of its kind in the world (ENR Jan. 12, p. 32).

Allegheny sewer authority wants water companies

Allegheny County (Pittsburgh) commissioners were furrowing their brows this week over the plan of the county's four-year-old sewer authority to take over the facilities and operation of two private water companies.

Organized to provide a unified sewage disposal system for Pittsburgh and the 127 other communities that make up hilly, triangular-shaped Allegheny County (ENR Jan. 16, '47, p. 90) the authority has been working on plans for sewer lines and plants, but does not expect to break ground for actual construction until about 1952.

But several weeks ago the authority's chairman, John F. Laboon presented to county commissioners a plan to purchase—for $28,000,000—the facilities of the South Pittsburgh Water Co. and the Monongahela Valley Water Corp., both of which serve southern portions of Pittsburgh.

Speaking for the authority, Laboon said that the purchase would accomplish two things: Ease the authority's problem in collecting sewer-rental charges, by permitting it to attach those charges to water bills to consumers; and provide the authority with revenue to support bonds that will finance other work.

• **Not popular**—The authority request got immediate—and much less than happy—attention. One Pittsburgh newspaper (the Press) opposed the deal in its entirety, pointing out that the authority in four years had produced nothing concrete in the way of sewers, and shouldn't be permitted to get into side business before it had accomplished something on its primary objective. Another newspaper (the Post-Gazette) gave qualified approval, but urged commissioners to study the proposal carefully.

Also in opposition were two powerful forces—Mayor David Lawrence, who immediately told newspapermen that the authority should stick to its sewerage last; and the influential Allegheny Conference (a group of civic and political leaders who had much to do with present replanning of Pittsburgh's business area and other improvements) which also weighed in with opposition.

Several opponents pointed out that the water-plant valuations set by the authority were not disinterested—that they had been set by authority and water-company engineers; and that there was no need for purchase of water companies to aid in collecting rentals. According to state law, the authority can require private or municipal companies to add sewer rental charges to their bills, and even to shut off water service for non-payment.

IJC to hear Waterton-Belly case; Montana fears loss by water diversion

Canada's St. Mary's River irrigation development would use U. S. waters; Montana claims 363,000 acre-ft; mutual benefits sought

An important case in international water rights will be the subject of discussion at meetings of the International Joint Commission in Ottawa next week, Oct. 10 and 11. The international body will hear argument on the Waterton-Belly rivers case—Montana and Alberta.

For five years, residents of Montana have been actively concerned about the disposition of the waters of these two rivers that originate in the United States. Since 1945 they have watched Canada's St. Mary River irrigation development taking shape to use all of these streams' firm base flow, a substantial part of which rises in the glaciers of Montana.

Residents of that state realized in 1945 that the portion of the water which belongs to the United States might be claimed by Canada if the water were put to beneficial use on lands on the Canadian side of the boundary prior to some mutually agreed-upon basis of apportionment. To Canada, the alternative to using the easily accessible U. S. water would be to construct somewhat more costly storage works that would utilize only water from Canadian sources.

• **Fair play prevails**—At that time, the United States agreed to withhold enforcement of its rights temporarily, while the matter was referred to the International Joint Commission for study and recommendations. A treaty between the United States and Great Britain—signed in 1909—provides for such recommendations by this international tribunal.

In referring the matter to IJC on January 12, 1948, the objective of the Canadian and U. S. governments was to develop a multiple purpose plan, which would be to the advantage of both nations, for the use of all waters "along, across or in the vicinity of the international boundary between the Continental Divide on the west and the St. Mary River drainage basin on the east."

By this definition, as agreed upon between the two governments (U. S. Department of State and Canadian Department of External Affairs), there is included the Oldman, Waterton and Belly rivers. The drainage basin of the Oldman River lies north of the boundary. These three streams discharge about 2,000,000 acre-ft of water annually into the Saskatchewan River.

• **Montana's fifth**—Montana portions of the Waterton and Belly rivers contribute about 363,000 acre-ft. of the total 2,000,000 acre-ft., or almost a fifth. It is this 363,000 acre-ft. of annual flow from the United States that should be apportioned through action by the two governments—upon the recommendation of the IJC—before plans for putting any of the waters of reference to work are made final in either country. Otherwise, under the reference, neither country would know how much water it had for its developments.

Under its instructions—contained in identical letters of reference from the two governments—the IJC is required: (1) To make a study of present and future uses of the waters. (2) To recommend an apportionment of that part of the waters which crosses the boundary, and (3) To develop plans of mutual international advantage for use of all the water. The engineering board established by the commission has made its final report on present and future uses of the waters. The next step is for the commission to recommend the allocation of the waters of U. S. origin between the two countries.

Canada plans to utilize all of the flows of the Waterton and Belly rivers for the St. Mary project (ENR Dec. 1, 1949, p. 31). As the amount of water to be so used includes all of the water of these two rivers which originates in the United States and a portion of that which rises in Canada, further work on the Canadian project might be held up pending the apportionment.

• **Plans for U. S. Water**—Meanwhile plans have been prepared by the Bureau of Reclamation for utilizing the U. S. water from the two streams by diverting it, before it enters Canada, in an all-American diversion route. Such a route, involving construction of a 21-mi tunnel at a cost of more than $100 million, would not be so advantageous as a less costly diversion of U. S. water around the mountains and across the plains of southern Alberta and back into Montana. The entire cost of tunnel diversion could be paid out of irrigation and power revenue.

Blame Congress for Bay bridge delay

Submitting his concluding report on the proposed second San Francisco Bay crossing recently, Ralph A. Tudor put the "fundamental" blame for the discontinuance of work on the bridge on Congress' failure to act on certain necessary legislation. (ENR June 8, p. 128)

Tudor, chief of the Division of San Francisco Bay Toll Crossings, explained that federal legislation on two points was essential for either a parallel or a southern crossing. Congress must authorize the Department of the Navy to grant rights of way across Navy-owned property and it must amend existing legislation that requires the present bridge to become toll free as soon as it has retired its own debt or within 40 years of its completion.

Plans had called for refinancing of the remaining cost of the present bridge and amortization of the cost of both bridges as one project.

When work ceased on the former project June 30, Tudor reported, enough plans had been completed to permit taking contract bids so that financing of the $128,291,000 crossing could be accomplished within six months.

Plans were finished for work making up about 80 percent of the total construction cost, he said.

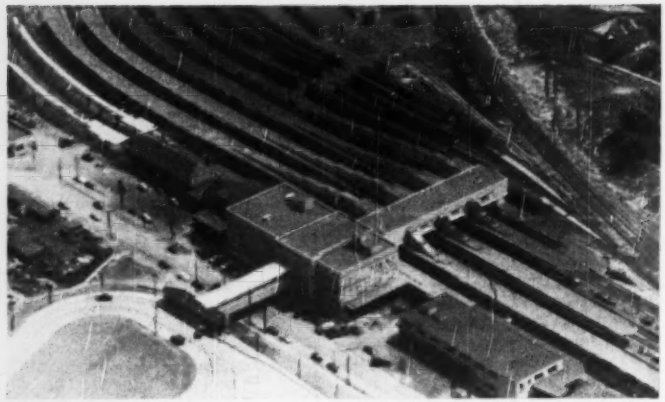
Of $472,000 spent on engineering studies of the crossing, $163,000 was spent on the parallel bridge, the span favored by the division and the State Department of Public Works, and $309,000 on the southern crossing, favored by San Francisco and the Army-Navy board that was convened in 1946.

The state legislature appropriated a total of $2,343,049 to finance the division's engineering studies, and Gov. Earl Warren had issued executive orders for right of way purchases amounting to $675,000.

As of June 30, the division had spent $2,035,000.

"The right of way which was purchased," Tudor said, "will be required for either a southern or a parallel crossing, or for an expansion of the approaches to the existing bridge. This property is unimproved and the purchase was made in order to avoid its improvement, thereby substantially reducing its ultimate cost to the state."

He added that approval of plans and clearances for both crossings were signed by the Chief of Engineers and the Acting Secretary of the Army in December, 1948, and that those permits would expire unless construction is started within five years and completed within ten years of that date.



PALACE OF GLASS—Toledo's new Central Union Terminal will provide optimum seeing conditions during daylight hours because of its use of light-directing glass block and clear sash in exterior walls. At night its "walls of daylight" will signal the city to passengers on the New York Central route. This is the first station built by the New York Central in two decades.

Boston Fin Com finds street paving scandal

Samples of 90 new roads reveal below-specification performance on contracts; four suits entered against contractors

Boston's Finance Commission has dug into 90 of 148 road construction and reconstruction jobs undertaken during 1949 (last year of Major James M. Curley's administration). A final report on the investigation indicates "the alarming extent to which the city paid for work which it did not obtain, despite the precise specifications of the contracts."

In its investigation the Fin Com took samples of pavement in 90 streets where contracts called for a complete paving job. Under contract the work on these streets was to have begun with excavation to a certain depth, followed by backfill, base, binder and top.

In more than half of the streets Fin Com's samples showed below-specification performance.

- In 51.7% of the samples the sheet-asphalt surface was below specification.
- In 62.6% the stone base was below requirements.
- On 66.6% of the jobs the overall depth of the pavement was less than specified.

Tests made on the depths of artificial stone sidewalks showed 45.7% to be deficient.

Fin Com also found that on 15 groups of streets there was an excess of costs over estimates amounting to $81,929, and on four other groups costs ran below estimate by $33,452, making a net excess borne by the city of $48,477.

Following these revelations of the Fin Com, William J. Foley, for 14 years public prosecutor of Suffolk County, stirred a storm of controversy by stating in a press interview that he contemplated no grand-jury proceedings regarding the Fin Com findings, had received no report from Fin Com, nor had asked for any.

Good building year foreseen by experts

Most probably the volume of building construction in 1951 will be the second largest in history, the Producers' Council was told at its annual meeting last week in New York City.

Clyde Shute, assistant vice president of the F. W. Dodge Corp., predicted that 1951 construction volume may be only 20% less than that obtained this year, which will be the largest on record.

Mr. Shute foresaw commercial building next year at about the 1950 volume, or off 15%; manufacturing building at about the 1950 volume, or a little higher; other non-residential building off 15% (though above 1948 and 1949); residential building off 33⅓%; and public works and utilities at about this year's volume. Thus, he said, total building construction will drop about 20%. This would make 1951 second only to 1950 in volume.

Walter Hoadley, Jr., economist of the Armstrong Cork Corp., also predicted that 1951 would be a good year, although it might get off to a bad start. At present, he said, we are moving into a period of a more-than-seasonal decline in housing. Voluntary restraints and rationing may keep inventories down, he thought.

Loan of $100 million seen on Labrador iron

Insurance companies interested; low bid on railroad from Seven Islands to Ungava ore field: $70,000,000

Moves toward the development of Labrador's 350,000,000-ton iron ore deposits go on apace.

Reported in New York are arrangements now nearing completion for a $100,000,000 loan to the Iron Ore Co. of Canada by American insurance companies.

This money will be in addition to $30,000,000 worth of common stock and $40,000,000 of 3% debentures pledged by six interested United States steel and iron companies, and by the Hollinger mining interests of Canada.

Meanwhile bids have been taken in Canada on the 360-mi railway from Seven Islands to the Ungava ore field by the Quebec North Shore and Labrador Railway Co.

Low bid on the line was from a combination composed of Fred Mannix & Co. Ltd., of Vancouver, B. C.; Morrison-Knudsen Co., Inc., of Boise, Idaho, and the McNamara Construction Co., Ltd., of Ont. Contract has been awarded to this group at about $70,000,000.

Iron Ore Co. is prepared to start construction of the road before winter closes in this year.

The whole development program will call for the expenditure of from $150,000,000 to $200,000,000, and will include construction of an electric power plant; housing for miners, and other auxiliary facilities, as well as railroad and mining equipment.

Subscribers to common stock of Iron Ore Co. of Canada are to pay 20% of their subscription pledge before the end of 1950.

United States companies participating in the project are: Wheeling Steel, National Steel, Youngstown Sheet & Tube, and Hanna Coal & Ore.

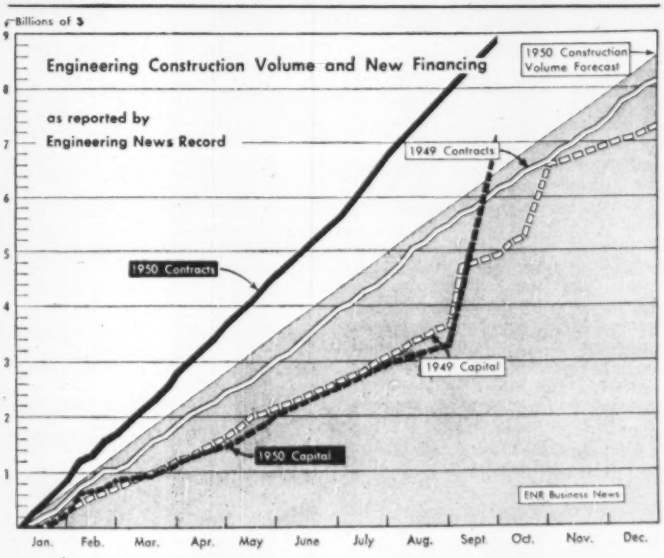
In charge of the Q.N.S.&L. Ry. operation is Hollinger-Hanna, Ltd.

Tampa highway damage estimated at $250,000

Damage to highway facilities around Tampa, Fla., due to the recent hurricane there, has been estimated by state road officials to be about $250,000. Repair work already is under way.

Across the state, in Jacksonville, the storm's full force did not hit, but torrential rains fell. About $40,000 damage was done to Jacksonville streets, mostly to shell-topped surfaces, which were pitted by the heavy rainfall. Some streets were flooded as deep as 3 ft.

CONSTRUCTION BUSINESS



Unprecedented Activity continues

Engineering construction in September smashed all previous records by a wide margin.

Contracts for $959,530,000 poured in at a rate 34% higher than the previous September record (1942) and 47% higher than the second highest September (1949) as reported by ENGINEERING NEWS-RECORD.

This jumps the 9-month heavy construction total up to $8,964,416,000 to smash all previous 12-month records including 1942. (Contracts awarded in 1942 for 12 months totalled $9,306 million, but $1,300 million of these were cancelled by the War Production Board.) The 1950 9-month record tops the old 1942 9-month record (ignoring later cancellations) by 17.5% and it tops 1949, the next highest 9-month volume by 46%.

A new all-time record is set for the Middle Atlantic states with $2,178,223,000 for the 9-months that tops the previous 12-month high (1949) by 5%. The 1950 volume is 35% higher than the 9-month record of 1949. Awards in all other areas top all 12-month peace years, including 1949, but are second to the 12-month 1942 war contracts before WPB cancellations.

Private engineering construction, including mass housing totals 5,226,398,000 through September to top the highest previous 12-months (1949) by 35% and the previous record 9-months (1949) by 81%.

Public works awards at $3,738,018,000 top the 9-months volume for 1949 by 15% and top all previous 12-months volume records, except four: 1942 ($8,750 million before cancellations), 1941 ($4,691 million) and 1949 ($4,295 million).

Commercial building and mass housing for the 9-months at $3,396 million tops all previous 12-month records. It tops 1949, the previous high year, by 41% and it tops the 9-month record for 1949 by 91%.

The September speedup in private industrial building is responsible for the record September volume. It also pushed the 9-months volume up to a new all time record $1,131 million that has already topped the previous 12-month record of $1,113 million in 1946. (World War II industrial building is counted as public because financed by Defense Plant Corp.)

Highway awards at $978 million have topped all previous 12-month records except the $996 million scored for 1948. They top the 1948 9-month record by 22%. For the year to date federal construction is running 11% higher than last year, state and municipal works 15%, and private contracts are 81% higher.

The class of construction showing biggest gain over last year for the 9 months is private unclassified (including pipelines), 113%.

ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD—SEPTEMBER, 1950

Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs — Waterworks, excavation, drainage and irrigation, $28,000; other public works $50,000; industrial buildings, $68,000; other buildings, $250,000*

Four Weeks — Thousands of Dollars (000 Omitted)

	September, 1950							U. S. Cumulative Nine Months		% Change	Canada Sept.
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1950	1949	'49-'50	1950
Public Works											
Waterworks	933	1,100	4,350	1,156	6,679	4,546	18,764	173,748	160,609	+ 8	973
Sewerage	1,780	3,941	4,191	4,417	7,504	3,095	24,928	205,250	198,416	+ 3	496
Bridges	703	22,659	5,156	3,703	3,486	1,446	37,153	279,386	252,410	+11	210
Earthwork and waterways	31	1,576	3,333	123	5,786	2,822	13,671	326,820	430,414	−24	3,408
Streets and roads	6,663	15,297	18,127	12,289	28,185	7,887	88,448	977,696	723,548	+35	1,814
Public buildings, residential	2,313	17,865	2,691	6,765	1,782	686	32,102	228,434	309,299	−26	5,203
Other public buildings	6,494	39,757	14,364	11,949	31,096	19,868	123,528	1,243,921	938,377	+33	13,672
Unclassified	1,294	8,937	5,451	4,121	4,378	6,104	30,288	302,763	249,147	+22	5,110
Total Public	20,211	111,132	57,666	44,523	88,896	46,454	368,882	3,738,018	3,262,220	+15	30,886
Federal government (included in above classifications)	39	15,369	6,275	893	9,923	9,255	41,754	933,203	840,518	+11	10,273
Private											
Bridges		550					550	6,895	3,918	+76	
Industrial buildings	2,150	23,045	84,447	59,093	42,169	11,804	222,708	1,130,970	792,023	+43	33,688
Com'l. buildings, residential	3,775	67,249	20,586	30,525	39,704	33,184	195,023	2,646,682	1,320,606	+100	1,155
Other commercial buildings	5,842	22,384	12,819	15,169	17,539	6,738	80,491	748,919	446,590	+68	4,501
Unclassified		1,410	3,935	12,524	21,516	491	91,876	692,932	325,779	+113	1,499
Total private	11,767	114,638	121,787	117,311	172,928	52,217	590,648	5,226,398	2,888,916	+81	40,744
Total Engineering Construction:											
Sept., 1950 — 4 weeks	31,978	225,770	179,453	161,834	261,824	98 671	959,530				71,630
August, 1950 — 5 weeks	48,641	271,372	259,065	142,772	297,552	145 280	1,164,682				74,621
September, 1949 — 5 weeks	38,509	255,827	109,726	99,734	211,783	94,730	810,309				44,162
Nine Months — 1950	411,677	2,178,223	1,434,690	1,314,975	2,212,370	1,412,481		8,964,416		+46	504,040
Nine Months — 1949	269,475	1,608,481	911,018	782,770	1,634,329	945,063			6,151,136		458,814
% Change '49 to '50	+53	+35	+57	+68	+35	+49					+10

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 84, went to press.)

Office—W. S. Bellows Construction Co., Houston, Tex., has been awarded contract to build $8,000,000 18-story office building in Houston, Tex., for the Prudential Insurance Company of America, Inc., Newark, N. J. Kenneth Franzheim, Houston is architect. Dale S. Cooper & Associates are engineers.

Parts Depot—International Harvester Co., Chicago, Ill. awarded contract for the construction of parts depot at Broadville, Ill., to Ragnor Benson, Inc., Chicago. Estimated cost is $8,000,000.

County Home and Hospital—Board of Commissioners Allegheny County, Pittsburgh, Pa. plans county home and hospital in Scott Township, to cost $13,415,000. Button & McLean, Pittsburgh, Pa. are architects.

Hospital—Farnsworth & Chambers, Houston, Tex. submitted $7,595,185 low bid for 7-story cancer research building and 5-story out-patient building, when the University of Texas, Texas Medical Center, Houston, opened bids September 28. W. P. Moore and Lockwood & Andrews, Houston, are architects. Mackie & Kamrath, Houston and Schmidt, Garden & Erikson, Chicago, Ill. are consulting architects.

Baking Plant—George A. Fuller Co., Chicago, Ill. will construct $7,500,000 baking plant for Sawyer Biscuit Co., a division of United Biscuit Co., of Chicago. Skidmore, Owings & Merrill, Chicago, designed plant, which will be located at Melrose Park, Ill.

Houses—Campus Hill Apartments, Flushing, N. Y. will construct a $5,000,000 housing development in Flushing, by own forces. John & Weston, Brooklyn, are architects for the project.

Oil Pipe Line—United States Pipe Line Co., Houston, Tex. plans to build a 1,078-mile 24-in. oil products pipe line carrier with terminal facilities, through Texas, Louisiana, Arkansas, Missouri and Illinois to cost $88,000,000.

Vocational School—A $6,188,266 contract has been awarded to Joseph F. Hughes & Co., Inc., Baltimore, Md., for constructing Edison-Barton-Morganthaler Vocation School in Baltimore. Bureau of Building, City of Baltimore let contract. Taylor & Fisher, Baltimore, are architects. C. M. Siquot, Baltimore, is structural engineer and Henry Adams, Inc. is mechanical engineer.

Apartments—Bell Associates, Bayside, N. Y. will construct apartment development in Bayside by separate contracts, to cost about $6,000,000. The seven apartment buildings and thirteen garages were designed by A. H. Salkowitz, Jackson Heights architect.

Pier—Merritt-Chapman & Scott Corp., Boston, Mass. was low bidder at $4,521,836 for constructing Pier 1, East Boston, Mass., for Port of Boston Authority, South Boston, at bids opening September 21. The same contractors also submitted a low bid of $466,700 for dredging, fill and demolition on project. Fay, Spofford & Thorndike, Boston are engineers for the project.

Housing—W. W. McGee Co., St. Paul, Minn. will build John J. McDonough Housing Project at $5,142,000 in St. Paul, Minn. for St. Paul Housing & Development Authority, St. Paul. Dimond, Haarstick & Lundgren, Slifer & Conc, G. W. Dimond & Associates and Gausman & Moore all of St. Paul, are architects.

Warehouse—Firestone Tire & Rubber Co., Akron, O. awarded contract to construct industrial plant and warehouse at Des Moines, Ia., to National Industrial Construction Co. and Morrison-Knudsen Co., of Los Angeles, to cost $5,000,000.

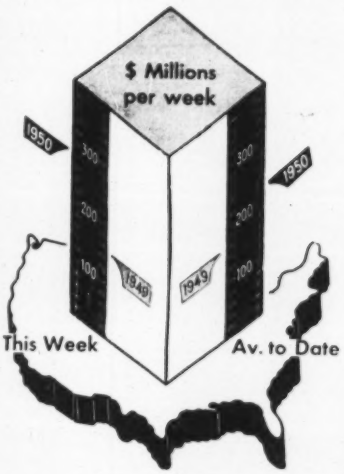
Sewage Treatment Plant—City of Saginaw, Mich. opened bids September 19, for sewage treatment plant, incinerator and sewer project. Low bidders include: Mancini-Miller-Thompson Construction Co., Detroit, Mich., bidding on various sections of tunnels, river crossings, pumping stations and supplementary work at $2,340,842; S. N. Nielsen Co., Chicago, on sewage disposal plant at $1,955,000; and Michigan Sewer Construction Co. on sewer tunnels and open cut sewer at $1,385,788. Hubbell, Roth & Clark, Inc., Detroit is consulting engineer.

Food Distribution Centers—Turner Construction Co., New York, N. Y., has been awarded contract by Safeway Stores, Oakland, Calif., for seven warehouses at Landover, Md., to cost about $4,000,000, and similar project at Kearney, N. J., estimated at $3,000,000. Alexander D. Crosett, New York, N. Y., is engineer.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926	1949
Constr. Cost	Oct. '50	534.44	256.91	112.03
Bldg. Cost	Oct. '50	396.23	214.19	112.63
Volume	Sept. '50	390	171	138



Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

	Week of Oct. 5, '50	Cumulative, 10 wks 1950	1949	% chge
Federal	$45.7	$978.9	$840.7	+16
State & Mun.	84.8	2,889.7	2,495.1	+16
Total Public	$130.6	$3,868.6	$3,335.8	+13
Total Private	157.4	5,383.8	2,967.7	+81
U. S. Total	$288.0	$9,252.4	$6,303.5	+47

Contracts by type of work

	This Week	Cumulative, 10 wks 1950	1949	% chge
Waterworks	$7.1	$180.7	$166.9	+8
Sewerage	6.3	211.6	202.6	+4
Bridges	5.5	291.8	266.9	+9
Highways	15.3	992.9	742.6	+34
Earthwork, Waterways	5.1	331.9	432.1	−23
Buildings:				
Public	70.1	1,213.8	960.2	+27
Housg., pub.	9.2	237.8	316.1	−25
House, priv.	54.4	2,701.0	1,362.1	+98
Commercial	33.2	782.1	456.8	+71
Industrial	64.4	1,195.5	808.6	+48
Unclassified	17.3	1,013.1	588.8	+72

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative, 10 wks 1950	1949	% chge
Non-Fed. & Fed. Aid	$522.0*	$432.5†	+21
Corporate Securities	1,547.3	1,842.9	−16
State and Mun.:			
Excl. Housing	1,697.0	1,716.9	−1
Housing	533.6	619.2	−14
FEDERAL	2,962.4*	1,711.7†	+73
Total Capital	$7,263.3	$6,323.3	+15

* Mandatory cutback must come out when determined. † Includes appropriations not passed until Oct., 1949.

Foley and FRB plan new housing curbs

Credit curbs are being forged in Washington for conventionally financed housing—to bring it in line with government anti-inflation policy as well as with government housing credit restrictions.

The regulations, as they emerge, can be applied only to housing started after Aug. 3.

Housing and Home Finance Administrator Raymond M. Foley sits in the driver's seat on residential credit controls, but the President's order delegating defense powers requires him to steer a course in line with Federal Reserve Board directives. The board wields authority over all real estate construction credit; restrictions on housing loans, however can be imposed only with Foley's concurrence.

• **A crackdown due**—Initial regulations will be stiff. HHFA and FRB agree that it is better to start with tight curbs and relax them later if they prove too tough. Soft restrictions might invite a rash of home building, pressured by fear of tighter curbs to come.

Charles T. Fisher, Jr., president of the National Bank of Detroit, heads FRB's new real estate credit office.

Last week Fisher had the bankers and lending institutions come in for a two-day conference on methods and mechanics of handling real estate credit curbs.

Two principles underlie the FRB and HHFA philosophy on restricting housing credit.

The first objective will be to shut off inflationary pressure on materials prices and other costs—reduce housing volume to a level that the defense economy can support without strain. Second, the curbs will be graduated, with tougher restrictions for higher-cost housing, more lenient terms for lower-income home purchasers.

• **Bigger down payments due**—Housing credit will be curbed in two ways—by increasing down payments and by shortening mortgage maturities.

Down payments are the first brake on housing credit. Regulations governing them will be so written as to preserve a financing market for both conventional and government-insured or guaranteed loans. That purpose will be achieved by relating down payments to sales prices—not to valuations.

First mortgage loans by private lenders usually are limited—by law or otherwise—to 60-65% of property value. No practicable means can be devised to obtain uniform control of valuation appraisals for conventional financing.

• **Government appraisals**—by FHA, for example—usually run less than sales prices, and less than private appraisal. Therefore, reducing government credit to the 60-65% level—by increasing down payment requirements—would wipe out government-backed financing of new housing.

To prevent that financing shift—and attendant lapse of the FHA uniform appraisal system—the credit regulation will tie the down payment to sales price.

The order will specify what part of the transaction price must be paid in non-borrowed capital.

• **Shorter maturities seen**—Regulation of mortgage maturities will be the second brake on housing credit. Shortening the mortgage term will increase the owner's monthly payments, thus draining off more spendable income in an inflationary period.

Some housing economists favor accelerated amortization. It draws off more money in the boom years, reduces payments in the future when times may not be so good. But the Federal Housing Administration and most lenders prefer the simpler, straightforward shortening of the mortgage term.

Housing controls people won't hold up the initial regulations while awaiting a decision by government economists on how much housing construction the economy can stand next year. In Fisher's words, FRB and HHFA will cut the cloth and hope it fits.

THREE SKYSCRAPERS FOR PITTSBURGH—Twenty and 24 stories high, these office buildings are planned for the redevelopment of Pittsburgh's Golden Triangle. The project is being built by Equitable Life Assurance Co. of the United States. Land area of the development amounts to 23 acres.

Skyscrapers, Pittsburgh redevelopment

Demolition has been started and design is well under way for the first three office buildings in Gateway Center, a commercial redevelopment of the Golden Triangle in Pittsburgh, Pa. (ENR Oct. 6, 1949, p 17).

Cross-shaped in plan, with wings about 50 ft wide and 73 ft long, the buildings have a net floor area of 13,000 sq ft per floor. Structural frames will be steel. Exteriors, not fully decided upon, will be metal, and floors lightweight arches. Air conditioning is also being studied.

Gateway Center is being built by the Equitable Life Assurance Company of the United States. Land for the project (23 acres) was assembled by the Urban Redevelopment Authority of Pittsburgh. This organization consists of Mayor David L. Lawrence, chairman, Arthur B. Van Buskirk, Wm. Alvin Stewart, Edgar J. Kaufmann and Max Don Howell. John P. Robin is executive director and T. S. Hazlett is solicitor.

Starrett Brothers & Eken is the general contractor. Work is under the direction of a board of design consisting of Thomas I. Parkinson (president of Equitable Life), chairman; Raymond H. Weims (executive vice president of Equitable Life), vice chairman; Henry M. Schley, secretary, Kenneth R. Crumpton (architect and tenants' representative), John P. Robin (Urban Redevelopment Authority), Gilmore D. Clarke, Irwin Clavan, Daniel P. Higgins, Henry F. Richardson and Joseph Di Stasio. Irwin Clavan and Eggers & Higgins are the architects; Joseph Di Stasio & Co., the structural engineers; Meyer, Strong & Jones, the mechanical engineers.

By 1952 towboats in the new Chain-of-Rocks canal will pass through the . . .

Biggest Lock on the Mississippi

CONSTRUCTION of the Chain-of-Rocks Locks No. 27, in a navigation cut-off canal of the Mississippi River above St. Louis, will be completed this fall. But it will be late next year or early 1952 before all operating equipment is installed and the locks begin operating.

There are two parallel locks, separated by an intermediate wall. The auxiliary lock is of normal size; measuring 600x110 ft. But the east, or main, lock—longest on the Mississippi River—will be 1,200 ft long and 110 ft wide. The east wall of the main lock is 92 ft high by 45 ft wide. The intermediate wall is 884x40 ft, and the west wall of the auxiliary lock is 60 ft high by 45 ft wide.

Completion of the $18,000,000 locks, together with the 8½ mile, $7,000,000 cut-off canal, fulfills the realization of an age-old dream of navigation interests on the Mississippi. No longer will towboats have to battle excessive water velocities and submerged rock ledges in the 7-mile Chain-of-Rocks reach in the Mississippi. They will also be assured a dependable channel of 9-ft minimum depth all the way from the mouth of the Ohio River, one mile below the site, to Minneapolis, Minn.

Some measure of the size of the project can be gained from the accompanying table of major quantities involved.

As would be expected, the lock gates are massive. The lower gates are of conventional, miter-type design. Each leaf of the miter gate in the main lock is 72 ft high, 61 ft wide, 5 ft thick and weighs 170 tons. Miter-gates in the auxiliary lock are smaller. Each leaf is 43 ft high, 61 ft wide and weighs 140 tons.

• **Vertical-lift upper gates**—Upper gates of both locks are of unusual design. To cope with the possibility of large ice flows, they are double-leaf, vertical-lift gates, raised and lowered like double-hung windows. Each leaf is 110 ft wide, 30 ft high and weighs 225 tons.

All gates are welded construction throughout, with the biggest single section to arrive on the job being a 75-ton buoyancy chamber for the lift gates. It was shipped on three railroad flatcars, delivered to the site on a 34-wheel truck and trailer combination, and lifted into place by two crawler cranes.

Construction of the locks, by a group of six contractors, was 80% completed on July 1. The cut-off canal was 40% completed on that date. The locks were scheduled for completion by this month, and the canal by Oct. 1 of next year.

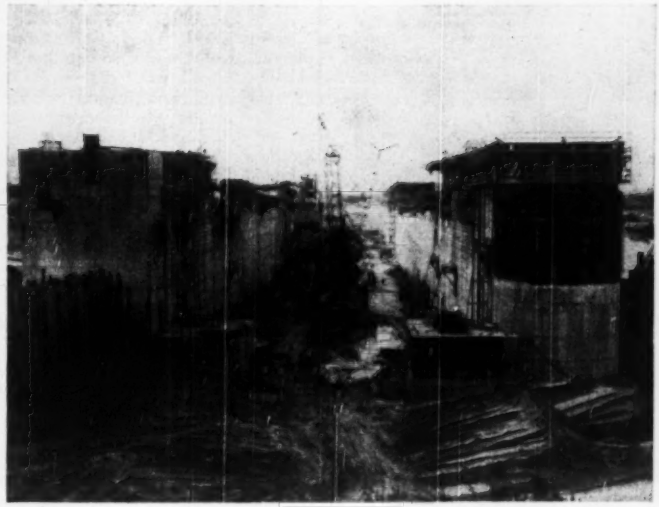
• **Dredged access channel**—Construction of the locks was started in July 1947. Prior to that time the Corps of Engineers dredged a 2-mi. channel in from the Mississippi River, along the route of the proposed cut-off canal, and up to the site of the proposed locks. This gave the contractors access to the site by water for their equipment. It also permitted excavation of the locksite by dredging instead of more expensive dry-land methods.

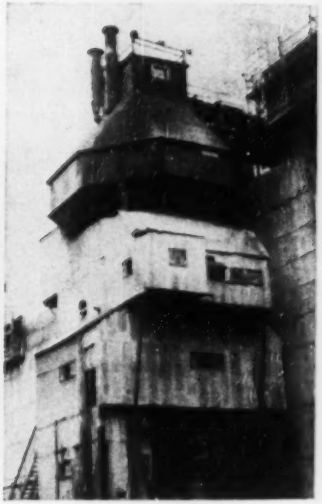
Dredging the 2,500,000 cu yd of excavation at the site of the locks was a big job, yet a rather simple one as such jobs go.

A big cutterhead dredge was floated up the access channel and went to work. As it dug itself below the bottom of the access channel, the channel was plugged, and dredging continued on down as near to rock as feasible. Pumps kept the water level lowered as the hole was deepened.

Part of the dredged material was used to build a levee completely around the area to a height of 14.5 ft above natural ground. This gave flood protection against all previously recorded high water at that location which, incidentally, is in a flood plain of the Mississippi River.

After the cutterhead dredge had worked as deep as possible (about 67 ft), pumping was stopped, and the hole permitted to fill up by ground water seepage. The plug in the access channel was removed and the dredge floated out into the Mississippi and back to its base. Before leaving the site, however, the dredge replugged the access channel behind it





MASSIVE WALLS, up to 92 ft high and 45 ft wide, form the 1,200 x 110-ft main lock. (Corps of Engineers photo). Nerve-center of operations (right) is the push-button-controlled batching and concrete-mixing plant, that turned out 1,200 cu yd of concrete in an 8-hr shift. (ENR Staff photo).

to give the required flood protection to the site.

The last few feet of excavation down to bedrock was done by a big clamshell and cableway, dragging the muck up onto the surrounding slopes. Final excavation, about 10 ft into bedrock, was by drilling and blasting, loading by power shovels and haulage by a fleet of 16-cu yd dump trucks.

• **Aggregate handling**—The size of the job called for a well-designed aggregate storage and handling system. All aggregates are limestone, produced commercially and delivered to the site in bottom-dump hopper cars. There are three sizes of coarse aggregates: ¼ to ¾-in., ¾ to 1½-in., and 1½ to 3-in. The sand is graded down from —¼-in.

Aggregates are dumped from the hopper cars through a railroad trestle into stock piles and chuted onto a 500-ft conveyor belt operating in an 8-ft sectional metal pipe culvert just below ground. This conveyor, which parallels the east lock wall, feeds onto an 800-ft. conveyor belt, with a 90-deg. transfer, which carries the aggregates to the concrete plant.

Part of this second conveyor is underground, the remainder being carried on steel towers and trestlework across one edge of the excavated hole to the batching and concrete plant located just inside of the east wall of the main lock.

The layout of the aggregate-handling system is simple, while its operation is about as efficient and foolproof as will be found on any job. Two operators man the tunnels and the electric-powered conveyors; one at the transfer point, the other operating the chutes.

• **Flow of aggregates**—The flow of aggregates is controlled by both a system of lights and horns, from the batching plant operator to the men in the aggregate tunnels. There are 6 lights in the tunnel: green to start operations; red to stop the flow of materials; and one, two, three or four lights for four sizes of aggregates.

These light signals are always accompanied by a system of audible signals, just in case the tunnel-operators fail to notice the lights. A push button signal at the transfer point in the tunnel also tells the batching plant operator that his instructions have been received by assistants.

Cement is shipped in by rail. It is discharged into a hopper and pneumatically conveyed either into a 3,000-bbl storage silo or to the batching plant through a pipe mounted on the aggregate conveyor frame.

• **Concreting plant**—The integrated batching and concrete-mixing plant is an efficient unit, complete with push-button control and the latest devices for accurately proportioning the coarse aggregates; sand; cement; air-entraining admixture; and the mixing water which is refrigerated to 35 deg F during warm weather. Seating on bedrock at the bottom of the main locks, the plant towers above the lock walls. It contains five aggregate bins from 60 to 115 tons each, and a 300-bbl cement bin.

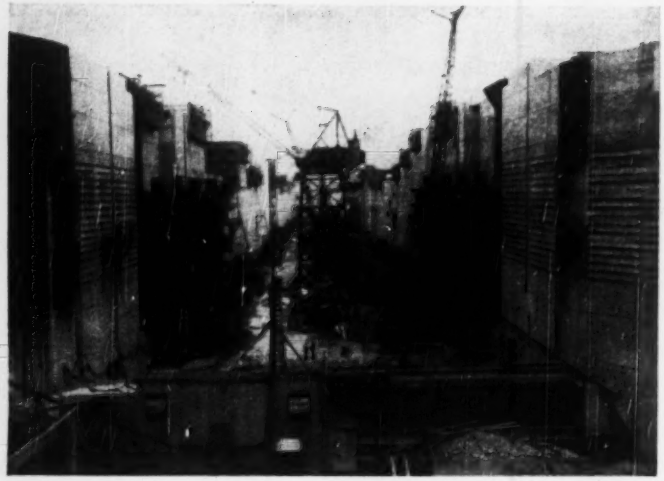
The concrete is mixed in two 3-cu yd tilting mixers beneath the batching plant, discharged into a 16-cu yd wet-batch hopper, from where it is discharged into the concrete buckets. Four-bucket flat cars pulled by "dinkey" engines operating on narrow gage track on the lock floor deliver the concrete buckets to the point of placement.

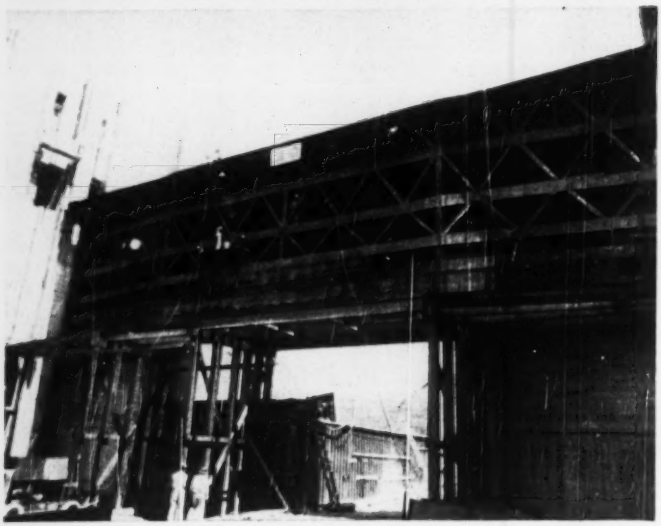
Each car carries three buckets of concrete; the fourth space being reserved for the last bucket previously emptied in the forms. Openings were left in the intermediate lock wall to permit passage of the concrete trains from the main lock into the auxiliary lock. They will be plugged with Prepakt concrete.

Traveling cranes—both gantry and

TABLE OF MAJOR QUANTITIES

Locks No. 27:	
Concrete	40,000 cu yd
Cement	1,780,000 bags
Reinforcing Steel	2,940,000 lb
Structural Steel	3,040,000 lb
Steel Wall Armor	720,000 lb
Iron and Steel Castings	290,000 lb
Excavation (earth)	2,500,000 cu yd
Excavation (rock)	50,000 cu yd
Form Lumber	3,000,000 fbm
Cut-off Canal:	
Excavation	25,000,000 cu yd
Highway Bridge:	
2,368 ft long, 22-ft roadway; to carry relocated U.S. Highway 66 over the cut-off canal.	





GIANT GATES close both locks—miter-gate at the downstream end of the main lock (upper photo) weighs 170 tons, each leaf; while twin-leaf, double-hung gates at the upper end (lower photo) weigh 225 tons per leaf.

crawler—pick up the concrete buckets from the cars and lower them into the forms. All concrete buckets are straight-sided, air-actuated, bottom-dump. Originally they were 2- and 3-cu yd capacity, but the contractors increased their capacities to 3- and 4-cu yd, respectively, by welding steel-plate skirts around the top.

Concreting operations reached a peak of 2,000 cu yd per day, and the maximum daily employment totaled 1,000 men, in three shifts. Lock walls are constructed in monoliths from 19-ft to 50-ft long, and concrete lifts vary from 5- to 10-ft thick. During the hottest weather, 4 tons of ice per hour to cool the concrete.

Four big gantry cranes and two crawler cranes handle the forms and place the concrete. Forms are removed, cleaned and re-erected during the day shift; with concrete placement during the other two shifts.

• Large panel forms—Forms are of the pre-fabricated, panel type; with the largest panel measuring 56 x 14½ ft. They are made up of 2-in. tongue-and-groove lagging inside of 4 x 10-in. vertical studs at 14-in. centers, and stiffened by a double line of horizontal channels at the bottom and a steel plate at the top.

The panel forms also are built with catwalks, top and bottom, protected by safety handrails. Although they are reused several times, it will take 3,000,000 fbm of lumber to form both locks.

The locks will be filled and emptied by a large culvert in the center of each of the three lock walls, near floor level. The culverts are 15½ ft high, and from 12½- to 18-ft wide. The main lock is served by the culverts in the east and center wall, and the auxiliary lock by the culvert in the west wall. Box-like reinforced concrete diffusers built into the locks permit emptying of the locks with a minimum of disturbance to traffic.

The 8½-mile cut-off canal is being dredged to a bottom width of 300 ft and a top width of 550 ft. Depth of cut varies from 10 to 45 ft, with an average depth of 32 ft. Immediately above the locks, the canal is widened to a bottom width of 700 ft for a distance of 6,750 ft to secure material for levee construction; also to provide harbor facilities for industries.

• Contractors on the job—The six contractors building the locks under the name of the River Construction Corp. include: the three New York City firms of Spencer, White and Prentis; Turner Construction Co.; and Raymond Concrete Pile Co.; the two Minneapolis firms of Winston Bros. Co., and Al Johnson Construction Co.; and Morrison-Knudsen Co., Boise, Idaho.

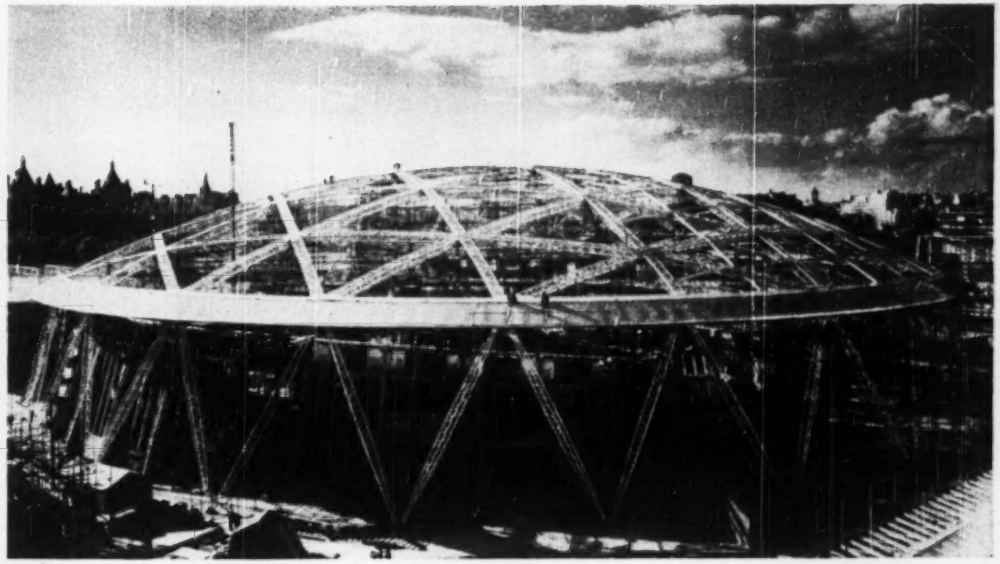
The American Bridge Co. is furnishing and erecting the lock gates under a subcontract. All dredging in connection with the locks is being done by the LaCrosse Dredging Co., Chicago, under a subcontract with the River Construction Corp.

The McWilliam Dredging Co., New Orleans, is the contractor on the 8½-mile cut-off canal; while all electric work is being performed by the Batzli Electric Co., Minneapolis, under an $800,000 contract.

R. J. Dunlap is project manager for the River Construction Corporation, assisted by W. A. Cunningham, project engineer; and Geo. Rantanen, superintendent of construction.

• Engineers in charge—The locks are being built by the St. Louis District, Corps of Engineers. Construction of the locks was started under the supervision of Col. R. E. Smyser, Jr., district engineer; succeeded recently by Col. B. C. Snow. L. B. Feagin is head engineer for the St. Louis District, and D. S. Blair is chief of the Construction Division.

Greere A. Allen is resident engineer on the locks; John J. Leslie is field office engineer; and Erwin Schmidt is chief inspector. L. F. Trost is resident engineer on the cut-off canal.



DOME OF DISCOVERY, exhibition hall for the 1951 British fair, is capped by 104,000-sq ft aluminum dome. Combine photos

British build largest dome

THE "DOME OF DISCOVERY" now being erected on the site of the Festival of Britain will be the largest dome in the world, claims THE ENGINEER (London) in its July 7 issue. Built of aluminum, the dome is 342 ft in diameter. It forms the roof of a 260-ft dia exhibition hall.

The dome is supported on a steel ring girder about 50 ft above ground level. This girder in turn is carried on tubular steel struts. Below the dome, and between the ring girder and the masonry wall of the 260-ft dia building, is an aluminum apron in the form of an inverted truncated cone, which forms a sloping canopy all around the building. Over the main entrance, this canopy extends about 75 ft from the wall; on the opposite side, the overhang decreases to 15 ft.

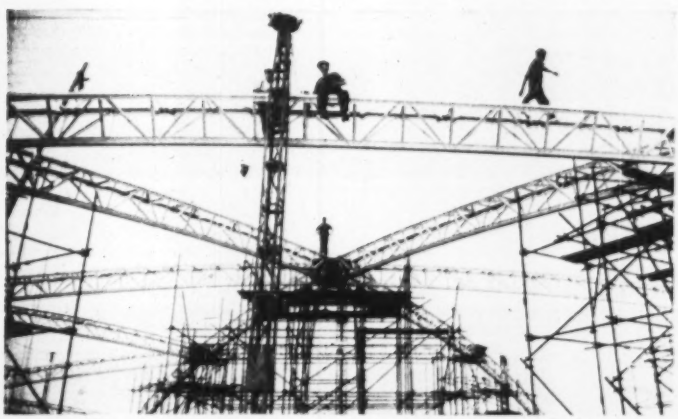
The dome is continued 8 ft 6 in. past the center of the ring girder and thus covers an area of 104,000 sq ft. It incorporates 260 tons of aluminum.

Main supports of the roof are six ribs radiating from the center of the dome along great circles at an angle of 60 deg with each other. They are lattice girders, triangular in cross section and curved in the vertical plane to a radius of 365 ft. Built up from seven extruded sections, these ribs are assembled with cold-driven $\frac{3}{4}$-in. dia aluminum rivets to form a triangle with a 2-ft 10-in. altitude and base. The base of the triangle is the top of the rib.

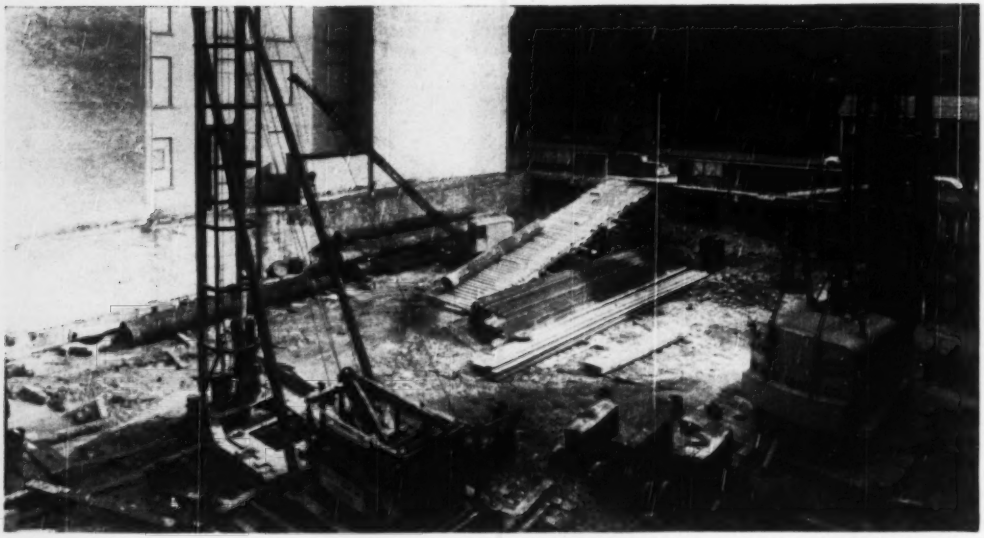
Six other ribs span across the ring girder, appearing in plan to form two interlocking inscribed triangles. Rafters cross between these and the main ribs leaving triangular openings, which in turn are spanned by purlins. Aluminum sheets cover the purlins.

Structural sections are made of an extruded heat-treated alloy, which has a 0.1% proof stress of 33,600 psi, an ultimate tensile strength of 40,300 psi and an elongation of 10%. Structural and Mechanical Development Engineers, Ltd., of Slough, fabricated the members. Freeman, Fox and Partners, consulting engineers, designed the dome.

The Dome of Discovery is one of several unusual structures being built for exhibition purposes on the South Bank of the Thames in London as part of the 1951 Festival of Britain. The exhibition is laid out to tell a continuous story of British contributions to civilization. Besides the dome, other novel structures include a Vertical Feature, a 200-ft high aluminum pencil suspended 40 ft above the ground (ENR April 20, p 58); Raw Materials Pavilion, a concrete tetrahedron; Sea and Ships, an open lattice frame structure of steel prestressed concrete, canvas and aluminum; and Character and Tradition, a steel frame structure with a lamellar type roof.



MAIN RIBS of the dome are riveted aluminum lattice girders, triangular in section.



TWO RIGS for two foundation types. Drive-and-drill rig (left) puts down caissons that don't require dangerous work for sand-hogs; pile-driver sets 115-ft spliced H-piles.

How to Build More Safely on Detroit Clay

Howard K. Gould
Midwest District Manager
Spencer, White and Prentis, Inc.
Detroit, Mich.

IF, AS MANY BELIEVE, another period of tall-building construction is due in downtown Detroit, foundation experience gained on an addition to the Detroit Branch, Chicago Federal Reserve Bank, now under construction, will be useful. Here, foundation conditions, to be met included plastic fluid clay, sand pockets, deep bedrock, ground water under pressure and the presence of hydrogen sulfide gas (as well as obstructions such as old foundation and boulder). These conditions were overcome by a combination of steel H-piles and drilled-in caissons.

The site for this 9-story addition is 135 x 115 ft, bounded by a main avenue, a 23-story office building, a narrow alley across which there are a theater and a 10-story office building. The existing Federal Reserve Building, which is being extended, completes the enclosure on the other side.

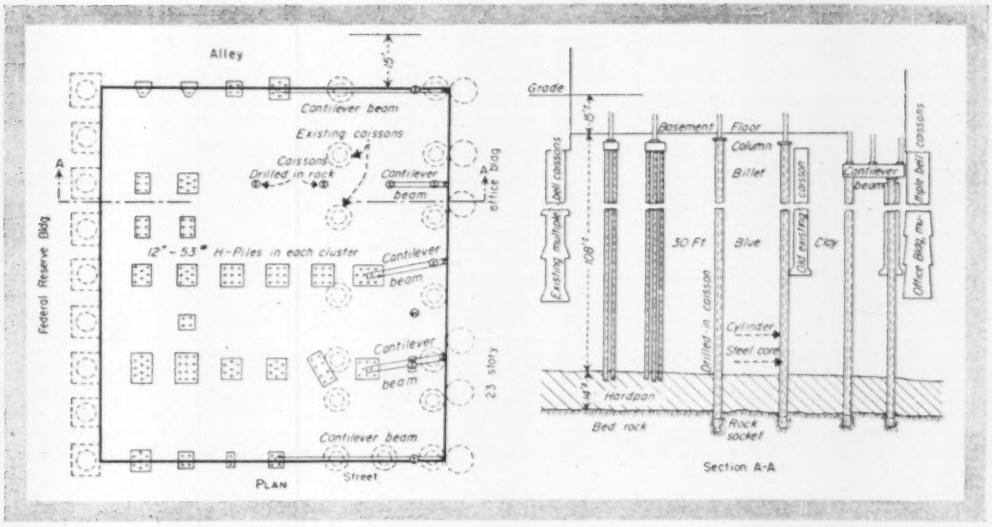
Test borings taken on the site indicated an average earth cross section to be 20 ft of fill and old concrete foundations overlying 100 ft of soft, plastic, blue clay streaked with pockets of moist, gray sand. Underlying this clay stratum is a 12- to 14-ft layer of compact glacial hardpan, consisting of clay, sand and gravel, extending to bedrock. Underlying the hardpan, in the top area of fractured rock, water exists under a pressure head of 80 to 90 ft. This water has a strong sulphur odor, but tests indicate it to have only 22 to 70 ppm hydrogen sulfide. Hydrogen sulfide has a high specific gravity, and it diffuses slowly in air. It is more poisonous than carbon monoxide: .05% in air will cause death if breathed for some time. A mixture of one volume of the gas to seven volumes of air will explode with great violence when ignited.

All the adjoining structures were founded in the clay. The existing Federal Reserve Building and the 23-story office building are supported on multiple-bell caissons about 41 ft above rock. The buildings across the alley are on spread footings above the elevation of the basement floor of the new addition. A building that previously had occupied the east 40 ft of the new building site had been supported on large-belled caissons, which remained in place but could not be used for the new structure.

Laboratory tests were made on undisturbed samples of the clay. Because of low shear value and bearing capacity obtained, (ring shear tests gave 150-200 psf) the engineers, Smith, Hinchman & Grylls, decided that the new foundation would have to be carried down to hardpan rock. Further study of the shear values indicated that if caissons were used for support they should be cased or lagged in advance of the excavation to prevent any loss-of-ground and subsequent settling of the adjoining structures.

• Chicago caissons formerly used— During the boom construction years of downtown Detroit most heavy structures were supported on hardpan or rock by hand-dug caissons using the so-called "Chicago method." These caissons or wells were sunk in sections about 4 ft deep, each section being sheeted immediately with 2-in. or 3-in. vertical planks and braced with sectional steel hoops. Great care had to be taken to fit the lagging tightly against the clay to prevent the start of flow.

In construction by this method considerable ground has been lost and settlement has been recorded in structures more than 50 ft away. There also was the hazard of collapse and suffocation of the sand-hogs doing the digging. In either free air or pneumatic caissons there has been ever-present danger of suffocation by the hydrogen sulfide gas. The foundation for the building directly across the street from this site was carried, under



LAYOUT AND CROSS-SECTION show where pile clusters and drilled-in caissons are installed; how cantilever beams transfer column loads to caissons. It was necessary to avoid driving piles close to adjacent 23-story building.

air, to rock at a great expense and the loss of several men.

In more recent years caissons have been installed to hardpan with the aid of mechanical rotary digging machines to excavate the shaft. The bell, however, still is excavated by hand labor. This method has been used only where there are no adjoining structures, since the sides of the shaft are left uncased for some height (usually 16 ft) while the excavation progresses. Obviously, some loss-of-ground is certain.

• **Criteria to be met**—The problem for this site was to design a foundation which would:

1. Carry down alongside of and below the multiple-belled caissons of adjacent buildings, without disturbance.
2. Keep the center of support for the outside column row as near as possible to the adjoining buildings, so as to keep the cantilever reaction to a minimum (see drawing).
3. Require a minimum surface area for installation so as to avoid complicated caps or grillages around or over the existing old caissons.
4. Keep displacement and vibration of the plastic clay to a minimum to safeguard adjoining structures.
5. Eliminate the cave-in and suffocation hazards to workmen.
6. Eliminate any possibility of an expensive compressed-air operation, or the uncertain results of pre-pressure grouting the area.
7. Cope with sub-surface obstacles such as existing concrete caisson bells that might not have their plan locations.

• **Design adopted**—The resulting foundation, consisting of a combination of steel H-section piles and drilled-in caissons, satisfactorily met those requirements. Caissons were used for all piers that were within 20 ft of the 23-story office building or were to carry loads in excess of 1,800 kips. Steel H piles, 12-in. 53 lb, were installed for the remaining piers. In all, the plan called for 9 caissons supporting a design load of 16,274 kips, and 168 piles carrying 22,163 kips.

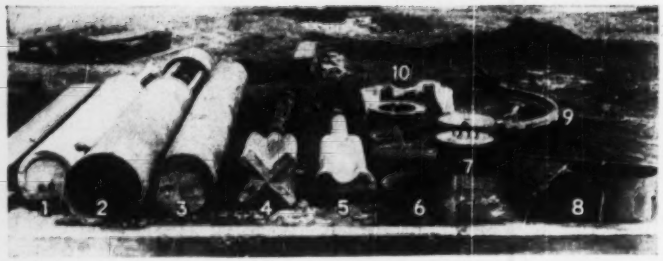
This design seemed to offer the best solution for the following reasons: drilled-in caissons could be installed with their centers within 30 in. of the adjoining wall, or directly alongside of or through the bell of an existing caisson, with a minimum of disturbance and no loss-of-ground; they could be installed in a confined area, as they had a diameter of only 30 in. and required no bell at the bottom; a single caisson could support loads as high as 1,800 tons. The usual hazards to workmen were eliminated, since compressed air was not necessary and all excavation was by mechanical methods from the ground level.

The steel H-piles were selected over other types of piling because of their small cross section area. In driving they would cut through the plastic clay, causing a minimum of vibration and displacement. Thereby, they would eliminate the danger of possible settlement by puddling or upheaval by displacement. Nor would it be necessary to pre-excavate to prevent lateral thrust and upheaval. This type pile also could be driven well into the hardpan.

Essentially the drilled-in caisson is a composite, restrained fixed-end column in a rock socket. The load is delivered by direct bearing and lateral compression to the bedrock. Such a caisson consists principally of the following:

1. A steel cylinder, or casing, with a reinforced cutting shoe that is seated in rock.
2. A socket in the rock of about the same inside diameter as the cylinder, drilled beyond the cylinder to a depth required for the load.
3. A steel core set in the center of the cylinder; where cylinder and concrete will carry the load, a stub H-section twice socket-depth in length is set at the bottom of the hole.
4. A high-strength concrete filling in socket and cylinder.
5. A cap plate.

On this particular job the cylinders were 30-in. dia. spiral-welded steel pipe with ½-in. wall thickness. Four 35-ft lengths were used for each caisson. The bottom length was fitted with a 1¼-in. by 18-in. tool-steel drive-shoe which was fillet-welded, top and bottom, to the casing. Welded to the top of the first section and also to the second and third was a ½ x 12-in. outside steel collar which, when welded



CAISSON-EXCAVATION TOOLS—(1) sand pump; (2) coring tools; (3) tremie bucket; (4) star bit; (5) spade bit; (6) core cutters; (7) grout head; (8) jacking collar; (9) jacking ring; (10) wrenches.

to the next section, served as a continuous external-splice connection.

• **Placing the caissons**—The first section was driven open-ended in fixed leads, by a specially built drive-and-drill skid rig. The hammer was a 7,500-pound ram with an average free fall of 40 in. The rig delivered 50 blows per minute.

When the first section was driven to ground level the next length was added, the splice welded and driving continued until heavy driving resistance was met. Then in order to minimize vibration, the hammer was swung from its cradle and the inside of the pipe was cleaned out by special tools that would remove large lumps of clay and good-size boulders (see illustration).

Drills used for cleaning were actuated by the same device that handled the hammer. In cleaning, care was taken to maintain a plug of clay at the bottom and to keep a head of water inside the pipe to prevent a possible blow-in of the plastic clay or sand. When hardpan and decomposed rock were reached, a 4,000-lb bit was put to work. Cuttings were bailed out intermittently. When the drill reached sound rock, the steel cylinder again was driven until it was firmly seated. The socket then was drilled to the required depth, which varied, depending upon the load to be carried, from a minimum of 2 ft to a maximum of 12 ft.

• **Placing core and filling**—After the socket had been cleaned by repeated flushing and bailing it was filled with water to a point of reverse head, so that the hydrostatic pressure of the subsurface water was in equilibrium. The socket then was filled with a cement grout deposited by means of a special bottom-dumping tremie bucket. The stub or core was lowered into position, after which the grout set up, to provide a water seal.

Later, the caisson was pumped clean and filled with 4,500-psi concrete. When the excavation was completed around the outside of the caisson to the proper grade, the steel pipe and core were cut off at the required elevation and capped. Eighteen columns were supported by nine drilled-in caissons.

• **H-pile foundation construction**—The remaining column loads were carried on 168 steel H-piles in 23 clusters. Each pile was composed of two lengths, of 60 ft. and 55 ft. respectively, welded together. Since these piles were to derive their support from end-bearing and not friction the point was reinforced to withstand driving into the hardpan. Reinforcement was obtained by welding a plate to the external side of each flange at the pile bottom. The piles were held in 80 ft ridged leads and driven with a single-acting steam pile hammer.

Two pier clusters were driven simultaneously at all times. A first length of 60 ft was driven in the first pier. When this was within three feet of the ground driving was stopped, and the second length of 55 ft picked up and placed on top of it. The top piece was held plumb while being tacked to the bottom. Then while butt-welding and splice plates were placed, the pile driver rig drove a bottom-length in the second pier. This operation was repeated back and forth until all the piles were driven.

The piles were driven into the hardpan to practical refusal, which was taken as an average of 18 blows per inch for the last six inches. This usually resulted in 20 to 22 blows per inch for the last inch. Piles in each pier were driven from the center out to the side or from one end progressively to the other.

There was no evidence of serious ground vibration, displacement or upheaval during or after driving.

The engineers and architects for this project were Smith, Hinchman and Grylls, Inc. represented on the job by William Beard. The general contractor was the O. W. Burke Co., for whom Robert Peden was superintendent. The work described was performed by the Drilled-In Caisson Corp., under the direction of William Gear and William Weeks. The Drilled-In Caisson Corp. is jointly owned by Western Foundation Corp. and Spencer, White & Prentis Inc.

Weathering of granite studied

Tests made by the National Bureau of Standards show that the weathering effects caused by thermal expansion and contraction are not very serious for the majority of structures built with domestic granite. However, these effects might become important for structures expected to endure for exceedingly long periods of time.

The investigation ("Thermal and Moisture Expansion Studies of Some Domestic Granites," by Arthur Hockman and Daniel W. Kessler, NBS JOURNAL OF RESEARCH, 44, 395-410, RP2087, 1950, Washington, D. C.) also indicated that moisture expansion may contribute to the weathering of granite, but even to lesser degree than thermal expansion.

On the other hand, when moisture and thermal expansions occur simultaneously, they may cause masonry units to be moved slightly out of position and damage the mortar joints.

The thermal expansivity of granite is a function of the expansivity of its mineral constituents. Thermal expansion coefficients computed for −20 C to +60 C ranged from 0.000 0048 to 0.000 0083 per deg C, with an average of 0.000 0062. Cooling coefficients were somewhat higher, averaging 0.000 0067. The heating curves of most of the samples showed some irregularities between 0 and 20 C. This irregular expansion was probably due to moisture changes in the samples during tests. When some of these samples were coated with a synthetic-resin waterproofing and retested, the resulting curves showed none of the irregularities of the untreated samples.

Tests also indicated that the average moisture expansion of granite is equivalent to the thermal expansion for 6 deg. C rise in temperature.

Little correlation was found between moisture expansion and such properties as absorption, porosity, density and mineral composition

SHALLOW TRENCH OR DEEP FOUNDATION . . . .

8 feet of water in fine sand and clay

22 feet of water in sand and gravel

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Severe Cold Weather Calls for . . .

Better Sewage-Pumping Installations

CHALLENGING utility problems are being handed to sanitary engineers as a result of intensified U. S. interest in arctic regions for both civilian development and military operations. The military problems are being studied by the National Research Council's Division of Medical Sciences through its Committee on Sanitary Engineering and Environment.

One study—that has been released because it has civilian application not only in the Arctic belt but also in less severe cold-weather regions—concerns design of lift stations for pumping sewage.

• **What's needed**—A survey of pumping stations in cold weather and permafrost climates indicates that there is a scarcity of data on operation—due primarily to the small number of stations in use. This incidentally, points up the public health need for adequate sewage-disposal facilities in areas—such as are found in Alaska.

Specific recommendations for better cold-weather sewage-pumping practice are summarized by the sub-committee on waste disposal in a report prepared by Harvey G. Rogers, director of Minnesota's water-pollution-control division. They are:

1. Conventional pumping stations should be modified and improved to facilitate construction and reliable operation in low-temperature areas.

2. Development of single-chamber stations with storage units inside the structure is needed.

3. Pumps or ejectors that do not require removal of screening in pumping station should be utilized.

4. Development of new types of pumps should be encouraged.

• **Permafrost problems**—Operation of sewage-pumping stations in northern areas of the U. S. is made difficult by prolonged severe cold. But the same problems (See right) are intensified in permafrost regions. In permafrost regions air temperatures are much lower and wind velocities are critical. Permafrost extends in many cases of within 3 to 5 ft of the ground surface. Temperatures in permafrost vary from 14 to 30 deg F; monthly mean air temperatures from plus 58 to minus 19 deg; and daily air temperatures from 100 in summer to minus 76 deg in winter.

Under these climatic conditions, pumping stations must be designed with additional requirements:

1. Conservation of heat in all possible ways, especially the heat in sewage, to protect against lowering of temperature and freezing in the sewers or treatment plant.

2. Minimum heat loss from the structure to surrounding soil to avoid thawing of permafrost and possible foundation failures.

3. Provision for sufficient heat in the structure to prevent freezing of sewage or inoperation of equipment.

• **Types of stations**—Six general classes of sewage-lift stations in use are sketched out at the right. The conventional wet-well and dry-well designs (A 1 and 2)—favored for installations in the northern U. S.—have these advantages:

1. Screens or other devices can be installed ahead of pumps to prevent clogging.

2. Equipment is accessible and maintenance facilitated. Pumps can be cleaned in place.

3. Standby power can be installed conveniently above ground.

4. Wet well and pump room can be ventilated easily, minimizing explosion hazards.

5. Flooding is precluded because motors and electrical equipment can be kept above ground.

But these points do not all apply to permafrost installations. There are some disadvantages not found in other designs:

1. Wet-well storage facilitates loss of heat from sewage into adjacent ground.

2. Open discharge permits release of entrained and volatile gases.

3. Large excavation and exposed wall surface facilitates loss of heat to surrounding ground and may contribute to foundation failure.

4. Ventilation is difficult.

The single-chamber, two-story station with a wet well in the bottom (B, 3) has disadvantages similar to Type A. The size of excavation is reduced but overall depth is increased. Also ventilation and maintenance problems are intensified.

The enclosed storage tank in a single chamber (C, 4, 5, and 6) is often utilized for small plant in the U. S. It is, however, less flexible, more expensive and less efficient. Its advantages:

1. Sewage is stored for a shorter period of time.

2. Gas and ventilation problems caused by sewage are minimized.

3. Underground stations are more easily built.

4. Storage unit can be insulated easily.

• **Selecting pumps**—Pumps for the Type C station may be selected from several available commercial designs. Units that do not require removal of screening are shown in C 5 and 6. The ejector (C 6) can be operated either by steam or compressed air, permitting the use of a remote source of power.

Grinders or cutting equipment, the report points out, which are entirely enclosed, can be utilized ahead of the pumps in Type C units. Also waterproof motors are available for stations where flooding must be considered as a possibility.

Utilization of any of these types of sewage-pumping stations depends, in most instances, entirely upon local conditions.

Entrances could be underground and through the side of the structure. The roof in such a case would be covered with loose soil or above-ground buildings could be used. A minimum quantity of heat would then be required. Ventilation could be provided quite easily through entrance walls or vents.

Conventional Lift Stations for Pumping Sewage

Classification

A Two separate chambers with common wall or connected by pipes. A wet well for sewage and a dry well for equipment (1 and 2).

B A single wet-well chamber. Pumps are submerged or set above sewage with a suction pipe. Pumps are above ground in a building or below ground immediately above sewage or separated by a sub-ground floor. (3).

C A single dry-pit chamber with small sewage-storage tank and pumping equipment (4, 5, and 6).

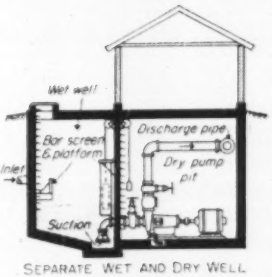
Pumps for Stations A, B and C.

Usually installed in duplicate, three types of pumps are utilized:

1. Horizontal or vertical centrifugal with impellers designed to pass sewage solids. Clogging protection: Screens to collect solids, knives to cut them up, or screens to bypass solids around pumps.
2. Ejector systems using compressed air or steam.
3. Reciprocating units — plunger or diaphragm type.

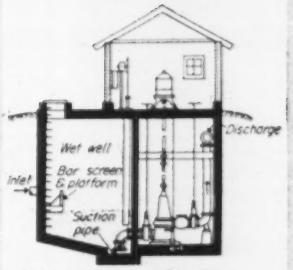
Operation Problems

1. Operating failures, caused by: Clogging of pumps, loss of power or stoppage of automatic controls.
2. Insufficient ventilation, causing: Explosion hazards, to employees, excessive condensation and corrosion of equipment or excessive odors.
3. Flooding of the station, caused by: Surface water, pump failure without overflow, or backing up of sewers.
4. Unsatisfactory maintenance, caused by: Insufficient space for working around equipment; hazardous working conditions in the station; inadequate methods for removing screenings; and difficult access through heavy manhole covers and exposed ladderways.



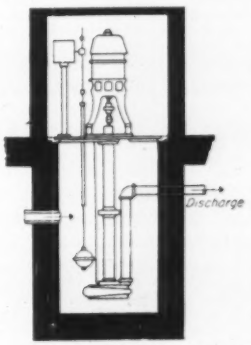
SEPARATE WET AND DRY WELL
(Horizontal pump)

A1



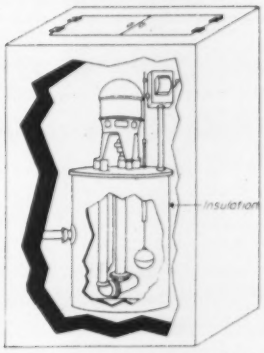
SEPARATE WET AND DRY WELL
(Vertical pump)

A2



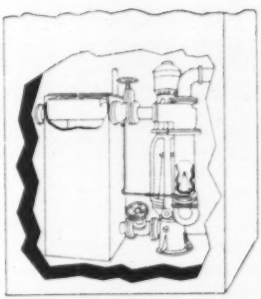
SUBMERGED SEWAGE PUMP

B3



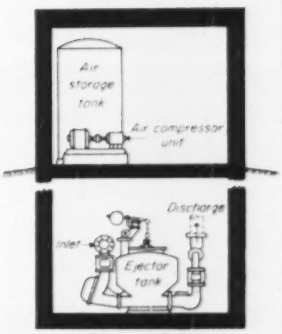
SUBMERGED VERTICAL PUMP

B4



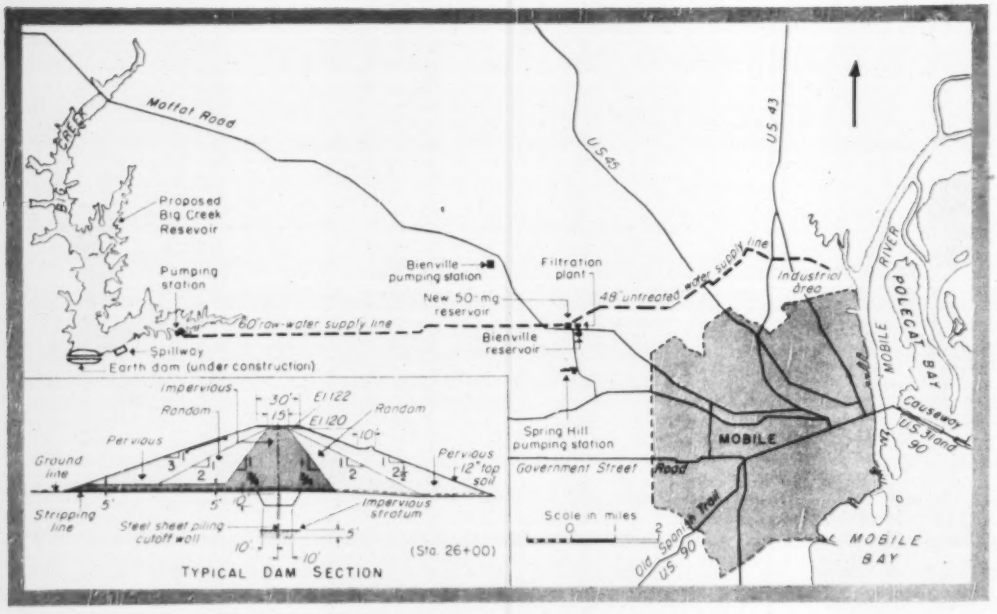
SINGLE CHAMBER AND PUMP

C5



EJECTOR TYPE

C6



A Water Supply Grows With a City

Favored with energetic industrial expansion and rising population, Mobile, Ala. found out that her venerable old water-supply system wouldn't take the increasing load imposed on it. What is being done to develop a new, forward-looking, reliable supply is described by J. B. Converse, president of J. B. Converse & Co., Inc., consulting engineers for the project.

WHEN A CITY needs water to support its industrial and domestic life, there's only one thing to do: Reach out for it. That's being done right now at Mobile, Ala.

The city—with about 200,000 people—is spending about $7,000,000 for an impounding reservoir, a pumping station, a long transmission main and a raw-water basin at the filtration plant.

• Harnessing the supply—The water supply is being developed on the Big Creek watershed about 18 miles west of Mobile. The reservoir, which will have a surface area of more than 3,590 acres and a 14,774-mg storage capacity at 20-ft drawdown, will be backed up by an earth dam. This will give a safe yield of 100 mgd.

The earth dam—with a maximum height of 77 ft and a length of about one mile—will have a steel sheet-pile cutoff wall and a puddled clay core (see section). It will be built on a stripped foundation of sand and clay.

One-half mile east of the dam, a concrete spillway will discharge excess water back into the creek's basin. With seven 10 x 31-ft tainter gates, its maximum discharge capacity is 35,000 cfs.

The dam and spillway are being built by L. L. Jarrell, general contractor of Mobile. His low bid was $1,362,947. Dam-site borings were by Raymond Concrete Pile Co., New York City.

—CHEMICAL ANALYSIS OF WATER—

Big Creek Water Supply, Mobile, Ala.

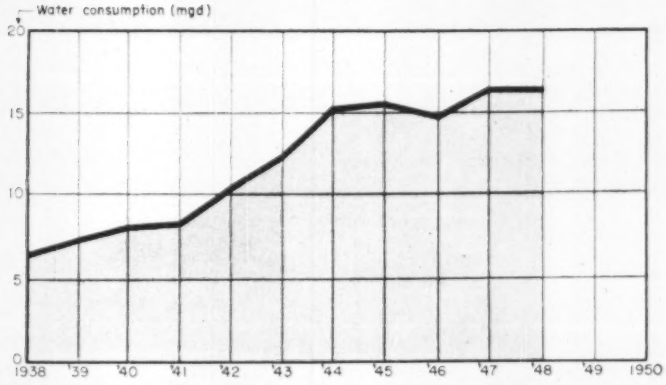
Silica (SiO_2)	7.5 ppm
Iron and aluminum oxides (Fe_2O_3 & Al_2O_3)	1.0 "
Chloride (Cl)	3.3 "
Sulfate (SO_4)	0.8 "
Calcium (Ca)	2.1 "
Free CO_2	6.0 "
Total alkalinity (as $CaCO_3$)	5.0 "
Soap hardness (as $CaCO_3$)	8.0 "
Color	44.0 "
Total dissolved solids	24.5 "
pH	5.8

• Conveying the water—Water from the Big Creek reservoir is to be pumped about nine miles to a new 50-mg raw-water basin at the seven-year-old filtration plant. The pumping station will include nine synchronous-motor-driven pumps. Total capacity is planned at 110 mgd against a 245-ft maximum head. Power is to be purchased from the Alabama Power Co. This construction contract has not been awarded.

The pipeline to the new raw-water basin at the filter plant will be 60-in. reinforced-concrete pressure pipe.

A contract for the raw-water basin to cost about $200,000 is to be let. This reservoir will be formed on earth and lined with concrete. It will be connected to an existing 20-mg reservoir at the plant.

With an elevation of 220 ft, untreated water will flow from the 50-



DEMAND for treated water has climbed about 165% in ten years.

ing reservoir through a 48-in. RC pressure pipe—also about nine miles long—to the industrial area of north Mobile. The city's domestic supply—drawn from the same reservoir—will be treated before delivery to the distribution system.

The pressure pipe is being manufactured by the Lock Joint Pipe Co. of East Orange, N. J., in a specially built yard at North Mobile. The contract calls for 47,250 ft of 60-in. pipe and 35,700 ft of 48-in., together with specials for $2,007,871.

The pipeline is to be installed by the Carruth Pipe Line Corp. of Baton Rouge, La. The cost—$387,579.

• **Financing** — Surveys, research and plans for the Big Creek development were financed out of advance planning funds. The Federal Works Agency loaned $75,000.

Construction costs are being defrayed by a revenue-bond issue for the project's full amount. Earnings are assigned to amortize this issue.

It is of interest to note that—without the support of two large industries—the project would not have been possible. The city alone did not provide sufficient earning power to carry the loan on a pay-as-you-take-in basis. But negotiations with the International Paper Co. and Hollingsworth & Whitney proved fruitful: they each agreed to use the supply to a minimum of 10 mgd.

The Big Creek supply system—when completed—will be operated by the City of Mobile for the Water Works Board. E. M. Stickney is superintendent of water for the city.

Notes on Legal Decisions

Summaries of decisions relating to construction prepared by I. Vernon Werbin, counselor at law and engineer, New York author of Legal Phases of Construction Contracts (McGraw-Hill)

No Recovery for Services of Unlicensed Architects

In states where statutes exist requiring architects to obtain a license before they may practice that profession, no recovery can be had for services rendered unless the architect has been duly licensed.[1]

This rule was applied in a case where a construction company entered into a contract whereby it agreed to perform services in preparing plans and specifications for remodeling certain premises so that it could be used as a bar and restaurant. The plans were to cover the complete job, including interior decorations, fittings, furnishings, kitchen equipment and everything necessary to create a complete eating and drinking establishment.

The construction company was to receive $10,500 for the specified services. The contractor was paid $500 on account for the services rendered and upon the refusal of the owner to pay the balance of $10,000 the contractor brought an action to recover the balance allegedly due under the contract. The contractor also sought to recover for said services on the basis of the fair and reasonable value, but was denied any recovery on the ground that even though only a small part of the services rendered were architectural, since part of the services were for architectural work and the construction company was not licensed to practice architecture, the contract was in violation of law and illegal.[2]

The court in its opinion indicated that the contract was entire and indivisible and there was no way of segregating the good from the bad portions of the contract. If the contractor had sold some of the interior furnishings and decorations, the contract could have been separated at least to the extent of permitting a recovery for the merchandise sold. Here, however, the contract called only for the rendition of services which makes it impossible for the court to separate the legal from the illegal services.

The court in its opinion also pointed out that the general rule still exists that if any part of the consideration for a contract is contrary to public policy, the contract is void. Where as in this case the owner's promise to pay arose out of, and is indissolubly linked with the contractor's illegal bargain, there can be no separation of acts to support proportional recovery. "To sustain the legality of the balance of the agreements would lead to widespread disregard for licensing statutes. It would be easy for any construction contractor to thwart the purposes for which the licensing of architects was enacted, by merely providing in his contract that architectural services would be given gratis, so long as the contractor were awarded the contract itself."[2]

(1) 118 A.L.R. 651, 652 and cases there cited.
(2) American Store Equipment & Construction Corp. v. Jack Dempsey's Punch Bowl, Inc., 21 N.Y.S. 2d 117, 174 Misc. 436, affirmed 16 N.Y.S. 2d 702, 258 App. Div. 784, affirmed 283 N.Y. 601, 27 N.E. 2d 23.

Implied Contracts

In every contract there is an implied covenant of good faith and fair dealing that neither party will do anything that injures the right of the other party to receive the benefits of the agreement.[1]

(1) Brown v. Superior Court, 212 P. 2d 878.

Unenforceable Provisions

A provision in a contract which is against public policy will not be enforced, but when such agreement contains provisions which are severable from the illegal ones and are in no way dependent on the enforcement of the illegal provisions for their validity, the legal provisions of the contract will be enforced.[1]

(1) In Re Port Pub. Co., 57 S.E. 2d 266.

BOOK REVIEWS

How to Compute Depreciation

DEPRECIATION—By Eugene L. Grant and Paul T. Norton, Jr. 472 pp. Ronald Press Co., New York 10, N. Y. $5.

Engineers and contractors will find this book valuable. It can serve as a manual on the accounting treatment of depreciation and as a guide in making business decisions in which decline in value of physical assets is involved (purchase vs rental of equipment, for example).

Accounting and income-tax treatment occupies about 60% of the book. Of necessity, therefore, the authors deal extensively with straight-line methods of computing depreciation, though other methods are also fully described.

The authors point to several disadvantages in using the straight-line methods. Further, they claim that these methods, in a period of high income taxes, may have a detrimental effect on the national economy, principally in creating a trend toward technological stagnation.

As a remedy, the authors suggest that taxpayers should have the option of choosing any one of several methods that write off the costs of fixed assets more rapidly in the early years than is possible under the straight-line method based on the best evidence of average service life. Any method once adopted for an account should be followed consistently for that account, but it should be permissible to use different methods for different classes of assets.

The authors are inclined to favor the declining balance method, with a high fixed percentage rate. In this method, the annual depreciation charge is equal to a constant percentage of the difference between the amount of the asset account and the amount of the reserve.

Engineering Aspects of Sedimentary Soil and Rock

APPLIED SEDIMENTATION—A Symposium edited by Parker D. Trask. 707 pp. John Wiley & Sons, New York 18; Chapman & Hall, London. $5.00.

This book's title gives little indication of the character and scope of its contents. While it contains chapters on such subjects as the sedimentation of reservoirs and the problems caused by sediment in irrigation canals, the book is made up largely of discussions of the physical aspects of sedimentary soils and rocks as they affect the work of civil and mining engineers and petroleum geologists.

Subjects range from the laws of sediment transportation through the effect of sedimentary soils and rocks on highway engineering to earth dams, soft rock tunneling, relation of landslides to sedimentary features, permafrost, shoaling problems in harbors and stream channel control.

The section on permafrost is a noteworthy addition to the literature on that subject.

The book was prepared under the auspices of the Division of Geology and Geography, National Research Council.

New York's Highways

CO-OPERATIVE HIGHWAY NEEDS STUDY—New York State Department of Public Works and the U. S. Bureau of Public Roads. 166 pp. Published by the New York Department of Public Works, Albany 1, N. Y. (Limited distribution).

New York State's Department of Public Works has issued a report on its highway needs that should prove to be a powerful sales document in building up support for the large expenditures the department must make over a long period of years if these needs are to be met. Illustrations have been used freely and with good effect. Wide appeal is assured by such devices as colored maps showing the movements of milk and other farm products over the state's highways. Also, one full page is given over to a map of each county showing diagrammatically what the highway deficiencies of that county are and where the accident rate is high.

Estimating Homebuilding Costs

HOUSE CONSTRUCTION COSTS—By G. Underwood. 314 pp. McGraw-Hill Book Co. New York 18 and London. $4.50.

From the author's wide experience in the construction industry, he has collected and presented in this manual a wealth of information necessary for estimating the cost of house construction. In addition, he offers many illustrations of structural details and full descriptions of methods of construction.

The book is based primarily on the unit-cost method of estimating. Each chapter concludes with a summary of reference data in which hours of labor, quantities of materials and related information are tabulated for each construction operation. By applying current prices of materials and wages in any locality to these data, an estimator can arrive at a close estimate of house construction costs.

Purification of Water

CLARIFICATION OF DRINKING WATER—202 pp. Orders should be addressed to the Library of Congress, Photoduplication Service, Publication Board Project, accompanied by check or money order payable to the Librarian of Congress. $7.50 in microfilm; $26.25 in photostat.

This is a comprehensive study of the theory and practice involved in the clarification of drinking water. It includes a critical review of the literature, an analysis of the effect of salts upon alum floc formation; and experimental work dealing with the removal of colloidal turbidity.

The first section of the report reviews colloidal theory, and practices of conditioning water prior to filtration. The second section details experiments and findings on the effects of calcium sulphate, magnesium sulphate, sodium sulphate, ammonium sulphate, disodium phosphate, and calcium carbonate and alum floc formation.

The final section describes experimental work on the effects of pH, temperature, alum alone, and alum along with varying concentrations of calcium, magnesium and sodium salts upon the flocculation and removal of colloidal clay turbidity.

The report was prepared by New York University under contract to the Army Engineering Research and Development Laboratories.

British Texts on Soils

THE MECHANICS OF ENGINEERING SOILS—By P. Leonard Capper and W. Fisher Cassie. 270 pp. McGraw-Hill Book Company, New York 18 and London. $4.00.

SOIL MECHANICS FOR CIVIL ENGINEERS—by Bernard H. Knight. 255 pp. Edward Arnold & Co., London; Longmans, Green & Co., New York. $5.25.

The two works that are being reviewed here have been compiled by British professors under a strong influence of the American textbook literature, though contributions by British journals are well reflected in them.

The book by Capper and Cassie was manufactured in England by the McGraw-Hill Book Company for the use in England and in America as well. It is a typical textbook in which, according to the foreword by L. Scott White, the authors "do not attempt to propound new theories but rather to clarify existing principles." The book is very clearly written and should

(Continued on page 44)

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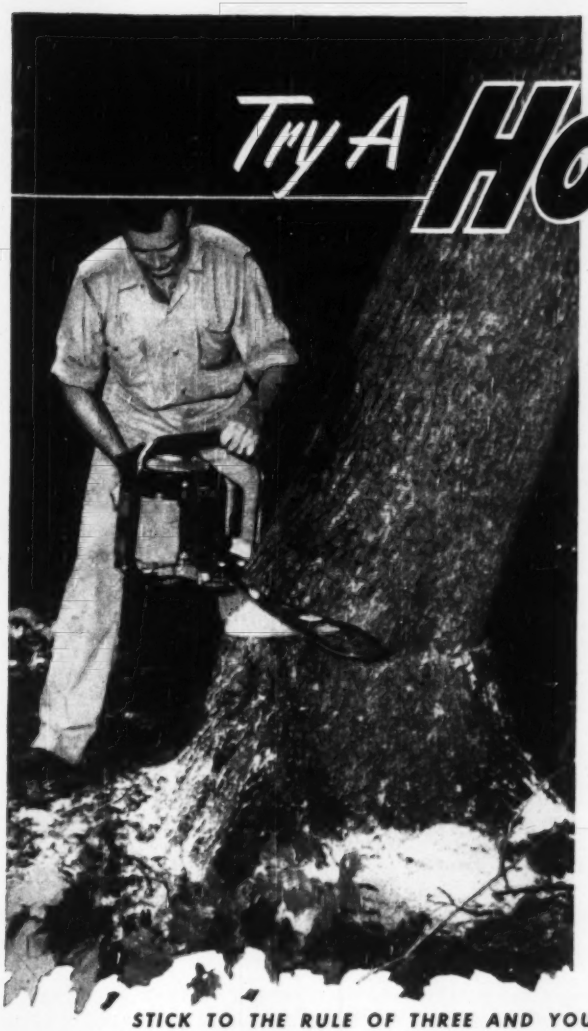

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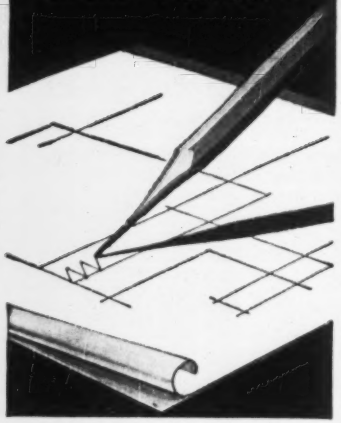

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(Continued from page 42)

be useful to graduate students other than those specializing in soil mechanics and foundation engineering.

In both books a considerable number of pages are dedicated to soil classifications, both British and American. It is an unfortunate fact, for both books however, that the so-called AC classification thoroughly discussed in the books, has been replaced by the Army Engineers (in 1949) by an equally temporary "Uniform Soil Classification;" and the PR classification that they also discuss thoroughly was revised about 1945.

Besides the soil classification, shear strength of clay is another obscure and controversial chapter of soil mechanics. In both texts it is presented very briefly, but satisfactorily enough for a book of general character.

Southwell's relaxation method is used by Capper and Cassie in discussing the construction of the flow net; this method is not used in the American textbooks for this purpose.

Professor Knight was for many years at the University of Witwatersrand in South Africa where he specialized in roads and highways. Though his discussion relative to the latter subject is based principally on the American sources of information, he gives some interesting details from the findings of the British Road Research Laboratory —REVIEWED by D. P. KRYNINE, CONSULTING ENGINEER, SAN FRANCISCO, CALIF.

Waste Disposal

INDUSTRIAL WASTE DISPOSAL—By Franklyn Roberts, 84 pp. Obtainable postpaid from Franklyn Roberts, 3288 W. Boston Blvd., Detroit 6, Mich. $3.00.

This is a compilation of articles dealing with the treatment of waste from the metallurgical industries. It contains numerous charts and formulas and illustrates and describes how some of the plants have solved their waste disposal problems.

Theory of Color

BASIC COLOR—By Egbert Jacobsen. 207 pp. Paul Theobald & Co., 5 No. Wabash Ave., Chicago 2, Ill. $14.75.

An interpretation of the color system of Wilhelm Ostwald, of Germany, this book presents a method of classifying colors that makes easy selection of complementary colors and colors that harmonize. It also makes standardization of colors possible, leading to ready duplication. The system is being used increasingly by manufacturers in this country. Some paint and glass manufacturers, the author points out, have adopted certain monochromatic series, which contained colors similar to those already in their production, as guides in establishing better interval relations. A manufacturer of ceramic structural tile made several special colors as required to suit certain buildings. Under ordinary circumstances, these would have been made at random, but with the help of the standards he was able to choose colors that already were well related and that consequently made possible many harmonious combinations. A paint manufacturer has set up a manual enabling painters all over the country to duplicate any color by mixing certain amounts of a few basic colors.

Foundation Design

SUBSTRUCTURE ANALYSIS AND DESIGN—By Paul Andersen. 305 pp. The Ronald Press Co., New York 10. $4.50.

Intended for the structural designer, rather than the soil technician, this text is concerned solely with the design of the portions of structures below ground or in water. Various methods for evaluating lateral earth pressures and the bearing power of soils are presented. The author then shows how to design sheet piling, footings, piles, cofferdams, breakwaters, wharves, and bridge piers and abutments. Emphasis throughout the book is placed on applications of theory to practice. The author uses sketches to a great extent to simplify the presentation.

How to Measure Stresses

HANDBOOK OF EXPERIMENTAL STRESS ANALYSIS—Edited by M. Hetenyi. 1,077 pp. John Wiley & Sons, New York 16; Chapman & Hall, London. $15.

AN INTRODUCTION TO EXPERIMENTAL STRESS ANALYSIS—By George H. Lee. 319 pp. John Wiley & Sons, New York 16; Chapman & Hall, London. $5.50.

The handbook represents an attempt by 31 outstanding stress analysts to provide a reference book covering all important experimental methods for measuring stresses and strains. Besides describing the various techniques, the authors present the mathematical background necessary to a full understanding of the methods.

The second book was written from mimeographed notes developed for students' use at the United States Naval Postgraduate School to meet the need for a textbook for a general course in experimental stress analysis. First, it briefly presents the necessary background information—the theory of elasticity and methods of determining stresses from strains. Then, the

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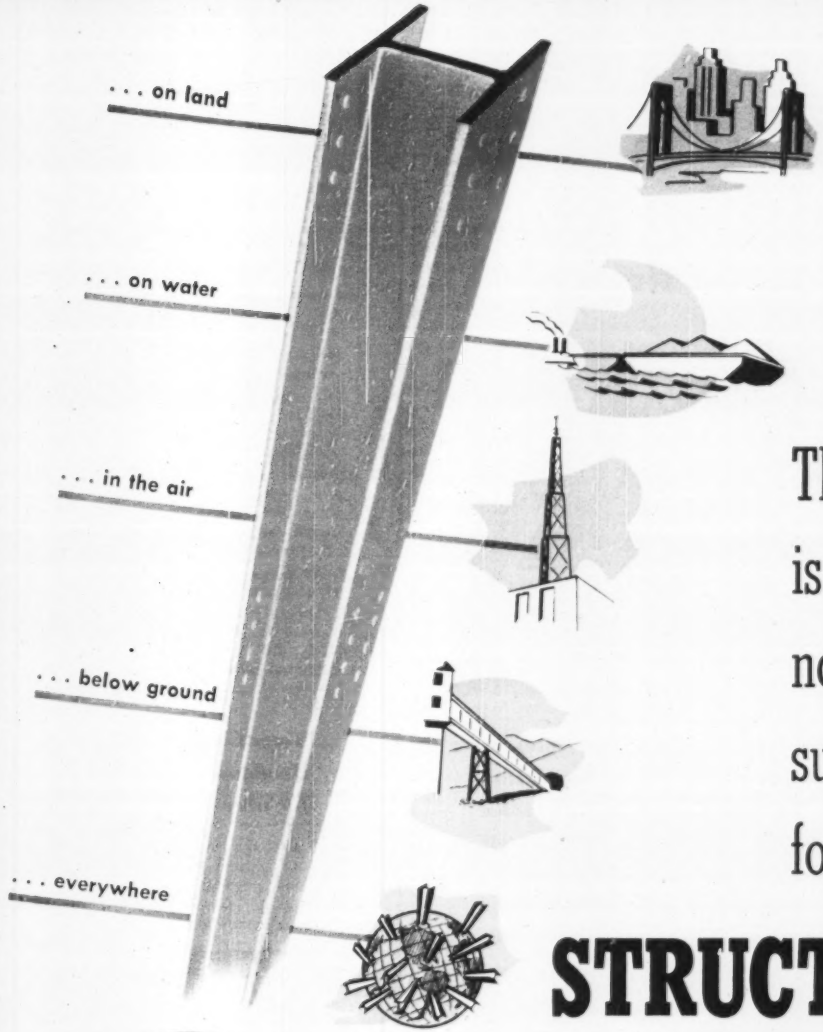

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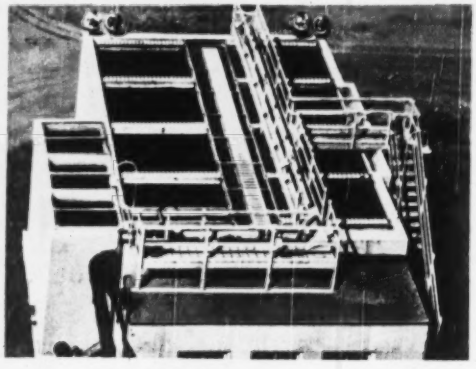

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(Continued from page 44)

various methods, instruments and techniques are described.

Included in both books are descriptions of methods involving the use of strain gages, photoelasticity, brittle lacquer, Begg's deformeter and membrane, hydrodynamic and electrical analogies.

Text on Reinforced Concrete

BASIC REINFORCED CONCRETE DESIGN—By George E. Large. 334 pp. The Ronald Press Co., New York. $5.50.

Planned for the use of students who are acquiring a basic understanding of reinforced concrete design, this book endeavors to teach the subject by the problem method. Insofar as possible, design methods are explained by the working out of examples using only fundamental mechanics. For example, none of the trusty old beam formulas can be found in the chapter on beams; they are given instead in an appendix. Each chapter concludes with a summary of the lessons to be learned from the examples and theory in it. A novel feature of the book is the inclusion of pictures and brief biographies of some of the outstanding contributors to our knowledge of reinforced concrete.

Miscellaneous Notes on Booklets and Reprints

A RAINFALL ATLAS FOR BRAZIL (Atlas Pluviometrico do Brasil) for the years 1914-38 has just been issued as Bulletin No. 5 of the Divisao de Aguas, of the Departamento Nacional da Producao Mineral, Rio de Janeiro, Brazil. This is the first publication issued in Brazil which describes the distribution and variability of rainfall in that great country and is the result of several years of work carried out by the Hydrological Bureau of the Division of Water. The studies were begun in 1940.

The atlas is of large size and copiously illustrated with rainfall distribution maps. To facilitate its use in English speaking countries a translation of the introductory explanatory statement into the English language has been prepared for insertion in the atlas.

NOTABLE INDUSTRIAL REHABILITATION WORK done in France since the war has been made the subject of a special issue of "L'Industrialisation du Batiment," which is published by Le Monteur des Travaux Publics et du Batiment, 23 Rue du Chateaudun, Paris IX, France. Important struc-

(Continued on page 48)

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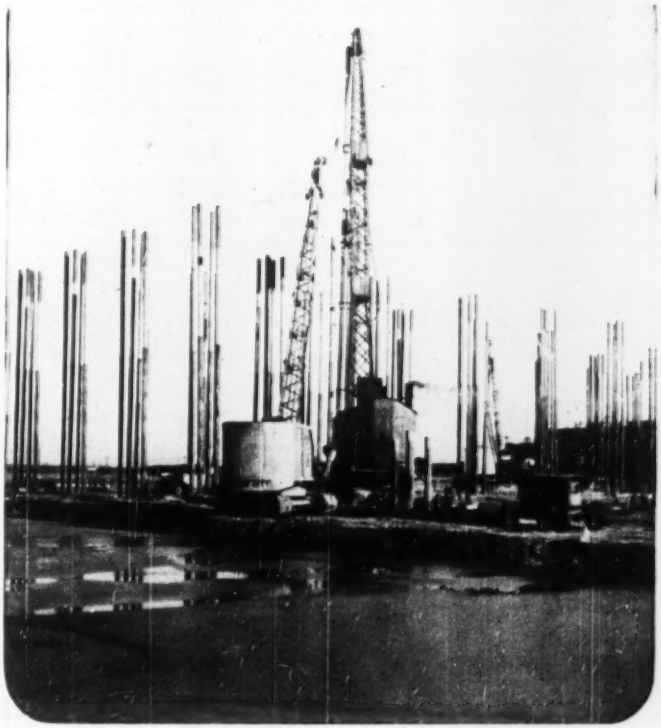

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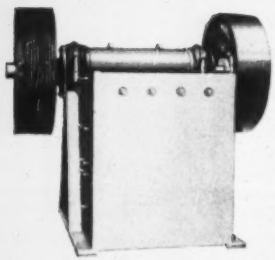

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(*Continued from page 47*)

tures are described and details are given of many of the types of construction that were used, including a large amount of information on the use of precast concrete units. Copies can be obtained from the publisher for 635 francs.

New Engineering Books

PROCEDURES FOR TESTING SOILS—Nomenclature and definitions: Standard methods: Suggested methods. Second edition, enlarged. 418 pp. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. $3.75 paper; $4.40 cloth (less in quantities and to ASTM members).

ENGINEERING ECONOMY—By H. G. Thuesen. 501 pp. Prentice-Hall Inc., 70 Fifth Ave., New York 11. $6.65.

POLICIES ON GEOMETRIC HIGHWAY DESIGN—A reprint of several separately issued pamphlets in one volume. Published by the American Association of State Highway Officials, 1220 National Press Building, Wash., D. C. $3.25.

THE WATER SEEKERS—By Remi A. Nadeau. 309 pp. Doubleday & Co., Inc., New York 20. $3.00.

THE PRACTICAL APPLICATION OF ACOUSTIC PRINCIPLES—By D. J. W. Cullum. 200 pp. E. & F. N. Spon, London, and The Macmillan Co., New York 11. $3.00.

PLANT LAYOUT AND MATERIALS HANDLING—By James M. Apple. 367 pp. The Ronald Press Co., New York 10. $5.00.

FIRST COURSE IN PROBABILITY AND STATISTICS—By J. Neyman. 350 pp. Henry Holt and Co., New York 10. $3.50.

HOUSE CONSTRUCTION COSTS—By G. Underwood. 314 pp. McGraw-Hill Book Co., New York, Toronto and London. $4.50.

ABRIDGED BUILDING CODE—1950 EDITION—Building Officials Conference of America, Inc., 51 E. 42nd St., New York 17. 119 pp. $3.50 (paper covers) $4.50 (cloth).

ASTM STANDARDS—1949—Part 1, Ferrous Metals; Part 3, Cement, Concrete, Ceramics, Thermal Insulation, Road Materials, Water-proofing, Soils. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Part 1, $10; Part 3, $8. An index to all ASTM standards is supplied without charge to purchasers of these books.

MATERIALS OF CONSTRUCTION—By John H. Bateman. 568 pp. Pitman Publishing Co., New York, Toronto, London. $6.50.

MAN THE MAKER—A history of technology and engineering. By R. J. Forbes. 335 pp. Henry Schuman, Inc., 20 E. 70th St., New York 21. $4.00.

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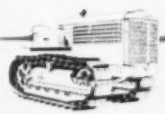

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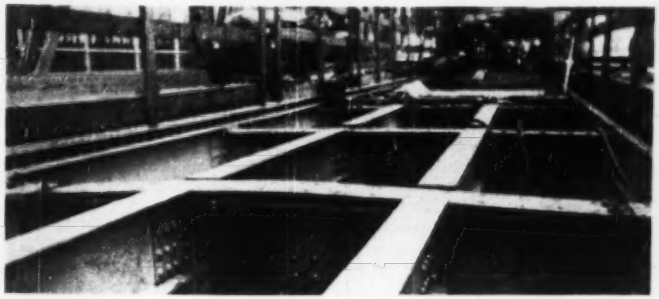
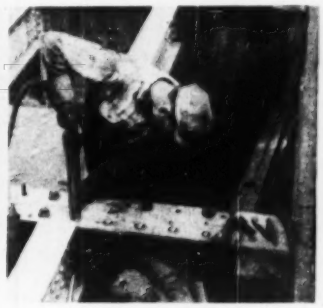


RESTORING A FLOORBEAM FLANGE—Part of a New York bridge repair job recently undertaken by Peerless Construction Co., New York, involved restoring 28 floorbeam flanges badly corroded during many years service. The 3-lane bridge was taken out of service in thirds, the outer ones first. In these cases new cover plates were riveted directly to original flange angles. To pre-load the flange, the middle 7-in. plate was specified $\frac{3}{8}$ in. longer than the available space of 9 ft. Peerless bolted one end down, and loose-bolted the other end so that it lapped the adjacent outer plate $\frac{3}{8}$ in.; then put wedges under the plate at the center, driving them until the loose end slipped down to place as loose-bolts were tightened. The picture above shows the result. Middle ordinate normally was about $1\frac{1}{4}$ in.

BOLTS WENT IN alternate hole pairs (ten pairs) after the plate had been butt-welded to its adjacent plates. Impact-wrench and hand tightening took place progressively so as to bring the plate gradually down to snug fit (where angles had corroded badly, bolts were not fully stressed, to avoid further damage and loss of bolt's effect).



RIVETS FINISHED THE JOB, first going in the unbolted holes, then replacing the bolts. Jack Fennell was steel superintendent for Peerless on the job (University Heights swing bridge); Allan Skylar was project engineer. Owner is the City of New York, Department of Public Works. J. Frank Johnson is director, division of bridges.

Scraps Make Good as Wales

Fast erection of forms for circular concrete tanks was obtained with the help of lowly 2x4 scraps on a job in Florida recently.

Top and bottom form frames were cut to tank radius, both inside and outside. Studding was nailed to inside radius frame first and sheathing was used for inner forms. Outside forms were of plywood. The contractor, Edison Concrete Corp., used short 2x4 wales, usually spanning 2 studs and alternating or staggering each span. (Where a 2x4 wale spanned 3 studs it was wedged for bearing on the third). This method of waling permitted the use of snap ties to reinforce form work, minimized radius cutting (top and both frame members only), permitted the use of short scrap 2x4's, reduced form cost and was a great time saver. Some walls were as high as 12 feet. M. G. Dykum, *F. H. McGraw & Co., Ocala, Fla.*

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By G. UNDERWOOD

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DEVELOPMENTS ABROAD

Electricity is rationed in Buenos Aires

On account of a great shortage of electric power in Buenos Aires, Argentina, the National Energy Administration of the Ministry of Industry and Commerce has forbidden power companies to accept any new contracts to furnish current for electric stoves. Other restrictions on the use of electric current have been put into force.

It is expected that these measures will increase the business of the state gas department which is piping natural gas into Buenos Aires from Patogonian fields through the Gasoducto Presidente Peron.

New Guinea development means big contracts

Dissatisfied with the slow progress of public works projects in the Australian-administered half of New Guinea, Australian Foreign Minister and Minister for External Territories Percy C. Spender hopes to get better results by awarding contracts to private engineering firms.

He said in Canberra that by attracting commercial organizations from overseas with the necessary men and material to undertake construction work in the territory, it is expected that the present limitations on Aus-

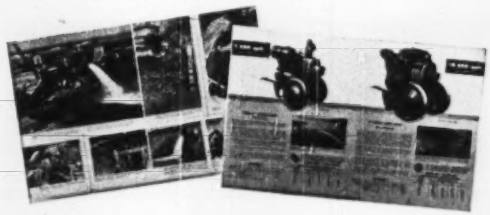
(*Continued on page 55*)

DESTROYED PIERS RAISED—When retreating Germans dynamited the Saalach River autobahn bridge near Munich the four main piers dropped into the river. Rather than dynamite the piers to clear the way for new construction, a Bavarian bridge construction company chose to raise the piers to their former position. Weighing 2,200 tons each, they were raised by hydraulic pumps in 14 days each. In the lower picture two of the piers point skyward from the river. The upper picture shows the bridge as rebuilt, almost entirely from the old parts.—Acme photos.

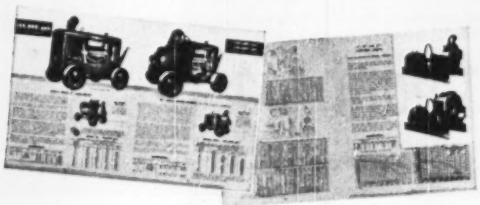
New Jaeger Catalog-Manual answers pumping problems

Send for your copy

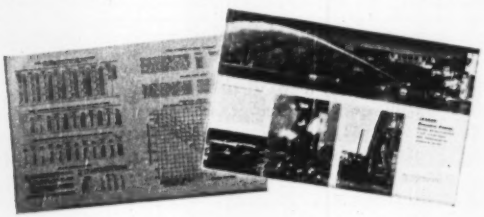
52 fact-packed pages on latest type pumps and their applications to construction work — drainage operations, pressure pumping, jetting, well point dewatering, electric pumps, useful engineering tables and hydraulic data.



Gives you a complete buyer's reference for every type of pump used by the construction industry — 1½" to 10" sizes.



Includes many new models, new performance ratings, and design improvements now available in "Sure Prime" pumps.



If you use contractors' pumps for any purpose, ask your Jaeger distributor or send for this new Catalog-Manual.

4 days' work in 3 with JAEGER AIR-PLUS

holds 90 lbs. in these two heavy rock drills, (instead of 70 lbs.)

250 ft. of 100 lb. air, (instead of 210 ft.)

250 ft. of 100 lb. air behind a 3½" drill — drills as many feet in 3 days as 210 ft. of air will drill in 4.

drills 35% more footage per hour

75 - 125 - 185 - 250 - 365 - 600 ft. — these "new standard" sizes give you more air per dollar, more production per man

Tools that starve for air when they're hooked to "old standard" size compressors hit hard and fast and profitably with Jaeger's 15% to 25% more air.

From the Model 75, that runs a heavy breaker at full pressure, to the Model 600, that holds full pressure in two 4" wagon drills plus an auxiliary drill, Jaeger "Air-Plus" capacity increases production up to 30% to 40% with the same men and tools. If you are interested in "air-power" rather than "iron," increased production without increased payroll, and full profit instead of "break even"—

see your Jaeger distributor, or send for Catalog JC-8.

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Leading distributors in 130 cities of the United States and Canada sell, rent and service Jaeger Engineered Equipment

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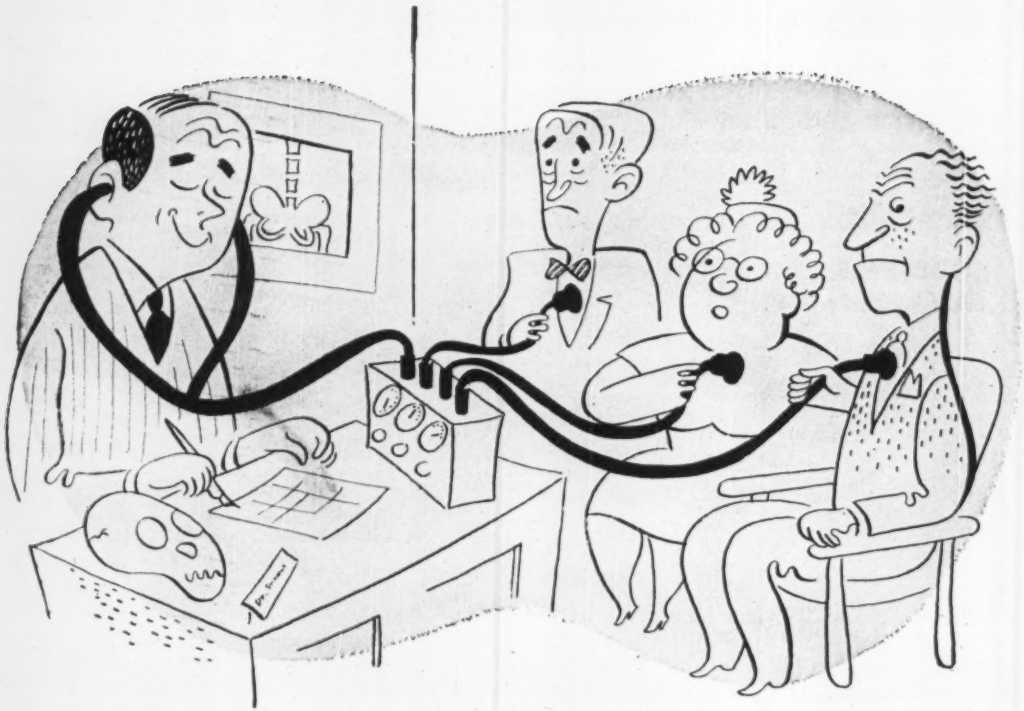

Reduced Treatment Costs

Less load at the disposal plant—and, therefore, a reduction in sewage treatment costs—is one of the practical advantages that often result from the use of Transite* Sewer Pipe.

There are two good reasons for this:

(1) Transite's special sleeve-type joints that cut sewer line infiltration to a minimum.

(2) Transite's long 13-foot lengths that reduce the number of joints in the line—an additional safeguard against infiltration.

Besides the immediate saving in treatment costs, this reduction in load also enables plant capacity to be conserved for future needs. And, where new treatment facilities are planned, it permits consideration of a smaller plant . . . with possible important economies in disposal equipment.

Other Transite Economies . . . Transite has an exceptionally smooth interior that reduces resistance to flow. This, combined with its long lengths that help maintain uniform grades, plus fewer joints that reduce turbulence, often permits designing the system with flatter grades and shallower trenches. Or, as an alternate economy, pipe of smaller diameter may be specified.

Transite Sewer Pipe is made of asbestos, cement and silica by a special method of manufacture which develops high, uniform strength and resistance to corrosion. It is available in four strength classes in sizes to 36". This permits selection of the pipe best suited to trench conditions, frequently eliminates the need for concrete cradles.

For further details, write Johns-Manville, Box 290, New York 16, N. Y.

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TRANSITE SEWER PIPE...

tralian resources will be overcome; and that costs will be brought down by awarding large contracts.

A contract has already been let to a private firm for the construction of a wharf at Samarai and bids have been received for one at Medang. Tenders will be invited for a new wharf at Port Moresby as soon as plans and specifications are completed. These projects, including a wharf under construction at Lae by the Department of Works and Housing, are estimated to cost $1,575,000.

Included in the major works to be undertaken in the territory are the rebuilding of Port Moresby to a master plan.

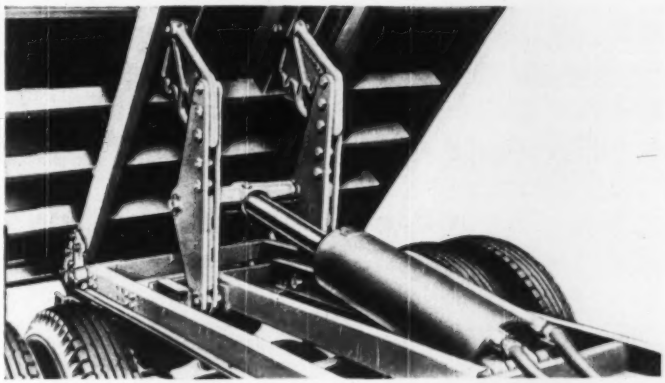
Foreign Briefs

Japanese dams—Japanese engineers are planning 36 new dams on the rivers of Honshu Island to control floods, produce electric power and store water, Howard A. Coombs, professor of geology at the University of Washington, reported in Seattle after returning from Japan. Dr. Coombs served 60 days as an engineering geology consultant for Gen. Douglas MacArthur's headquarters. The largest proposed dam, on the Tama River 40 mi. west of Tokyo, would provide adequate water storage for that city. Flood control also is urgently needed as one recent flood caused $6,000,000 damage in two days. Manufacturing cities need new hydroelectric energy.

Damodar Valley development—L. F. Harza, president of the Harza Engineering Co., and S. O. Harper, retired chief engineer of the U. S. Bureau of Reclamation, have been appointed members of the consulting board of the Damodar Valley Corporation, Calcutta, India. They are in India reviewing a number of hydroelectric, flood control and irrigation projects proposed for the Damodar River and its tributaries. The Damodar Valley Corporation is a government corporation formed to develop the valley.

U. S. machinery to Chile—A credit to Corporacion de Fomento de la Produccion, an agency of the government of Chile, in the amount of $1,800,000 has been announced by the Export-Import Bank. The funds will be used for the purchase in the United States and the transportation to Chile of U. S. road-building machinery, equipment, supplies, and spare parts for the roads division of the Ministry of Public Works of Chile, which will relocate and construct about 300 miles of the Pan-American Highway from Santiago northward to La Serena in the province of Coquimbo.

Mount it and Forget it!*



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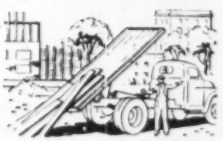
—ON THE HIGHWAY

—IN PIT OR QUARRY



—IN INDUSTRY

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* Only Galion's give you the "ready and rarin' to go" stamina of *Fulcrumatic* Lift action! Smooth, effortless unloading . . . even distribution of the payload weight over the entire body and frame . . . lifting energy concentrated on just one thing—lifting the load! All are important reasons why you can "mount a *Fulcrumatic* and forget it"...why you can depend on Galion's *Fulcrumatic* transmission action to deliver more tons years longer! See your truck dealer or Galion distributor for complete details.

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Fulcrumatic HYDRAULIC HOISTS
TRADEMARK
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S. S. ESSAYONS. World's largest seagoing hopper dredge. 525 feet long. 10,000 tons, speed—15 knots empty. Designed by the Marine Division of the Philadelphia Office of the U. S. Army Engineers. Constructed by the Sun Shipbuilding and Dry Dock Company.

IT SUCKS MUCK

-120,000 GALLONS A MINUTE

Tiger Brand Wire Rope helps keep traffic open in world's busiest harbor

HOIST FOR NOZZLES. Note the smooth reeling and the heavy lubrication for preventing corrosion.

● The new Army Engineers' Hopper Dredge S. S. Essayons works like an underwater vacuum cleaner. She drops two huge suction nozzles to the harbor bottom and sucks up mud and silt at the amazing rate of 120,000 gallons a minute. No other dredge in the world can match this speed. She can fill her 8,000 cubic yards of hoppers in 40 minutes. Then she steams out to deep water and discharges the load.

The two suction nozzles are lowered and raised with American Tiger Brand Wire Rope. As this rope is in and out of salt water constantly, it is heavily lubricated to prevent corrosion. It must also resist vibration and abrasion and have plenty of strength to lift the heavy nozzles.

Tiger Brand Wire Rope and Strand have many other uses on board the Essayons—for hawsers, hoists, boom supports, rigging, guys and mooring lines. Each type is especially designed for its particular use.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
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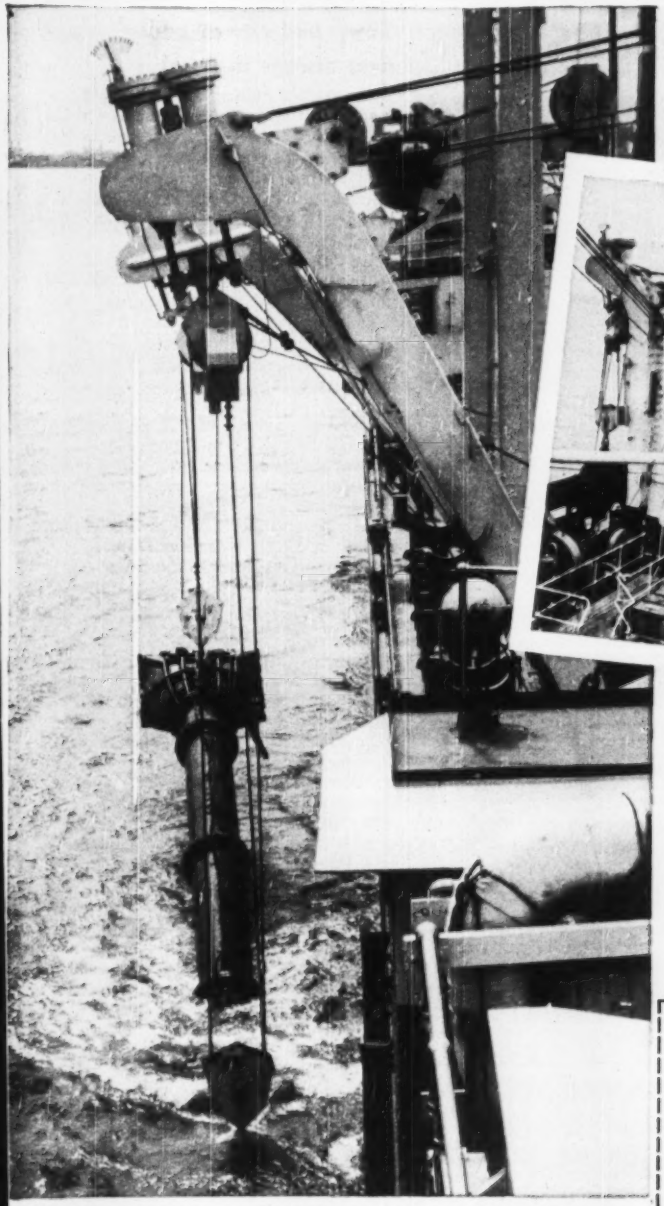
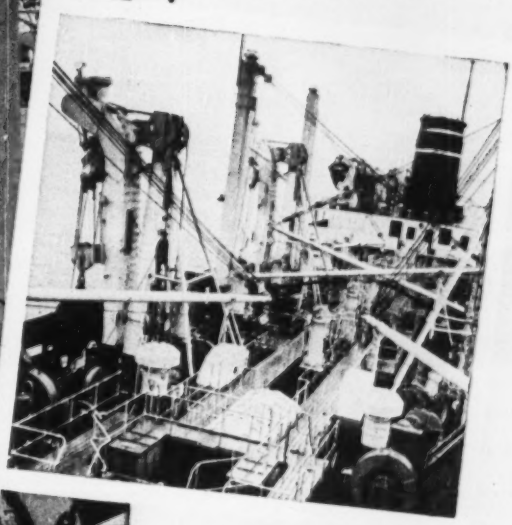
SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Judge it by the jobs it handles



LOWERING THE GIANT "SUCKERS." A tough job where Tiger Brand Rope shows its strength and endurance. This rope is in and out of the water constantly and must withstand corrosion, abrasion, vibration and fatigue.

TIGER BRAND WIRE ROPE DOES THE HEAVY WORK. Everywhere you look on shipboard you see Tiger Brand Rope for hoisting cargo, lowering life boats, supporting booms and mooring the ship.



How Tiger Brand Wire Rope can help you!

No matter what application you have for wire rope, the Tiger Brand Specialist can help you select the kind that fits the job. Proper application and care will enable you to get the most service at the lowest cost. Call on the Tiger Brand Specialist for a wire rope check-up. There's no obligation.

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UNITED STATES STEEL

MUNICIPAL AFFAIRS

FIRST CITY OF THE FIRST STATE—That is the slogan of Wilmington, Del., and the explanation is simple. Wilmington is the largest city in Delaware which was the first state to join the Union—on Dec. 7, 1787. The importance of Wilmington business is indicated by these substantial buildings of its downtown district.

Great engineering and construction work is proceeding in Wilmington, Del.

Among the important projects now under way in and near Wilmington are: A $9,000,000 sewage disposal plant and interceptor sewers; extensions to the municipal water system; the construction of the Delaware Memorial Bridge five miles away at a cost of $42,000,000; the erection of residential buildings to contain 3,200 apartments; and the building of 1,200 individual houses.

In the meantime, there is a great deal of agitation to improve traffic and parking conditions.

The municipal water supply is taken from the Brandywine River. It is filtered and held in reservoirs with a capacity of 2,131,000,000 gal.

New Castle County airport, 6 miles south of Wilmington, has a main runway of 7,000 ft.

Wilmington is a city of diversified industries, such as chemicals, vulcanized fiber, leather, rubber hose, cotton dyeing and finishing, aircraft, automobiles, boilers, clothing, cork products, paper, rayon, and many others. Among the biggest manufacturers are E. I. duPont de Nemours & Co., Inc., the Pusey & Jones Corp., Joseph Bancroft & Sons Co., and the Atlas Powder Co.

SAFETY FIRST—When the Seattle, Wash., city engineering department began to resurface streets on a number of steep hills in the business district, it decided discretion was the better part of valor. With grades running as steep as 16 deg., a tractor with winch was used to steady the 10-ton paving roller on the downhill and help to haul it back uphill. On more gradual grades, workmen are ready with blocks should a pinion break but a more reassuring brake was decided upon for the busy business district.

Town and city at odds over sewage disposal

If Niagara Falls, N. Y. does not conclude an agreement with the Town of Niagara for sewage disposal services in the town's Pine Avenue section, consideration will be given to construction of a new sewage disposal plant. (In New York state a "town" is a township.)

So far, the city has refused to state its position on a town request for permission to tap into city sewers on a rental basis, in order to dispose of sewage from the town's properties.

Town Engineer Paul F. Haseley presented to the meeting a map which outlined the possibilities of a sewage disposal plant north of Pine Avenue, and said that in the operation of such a plant sewage could be given primary and secondary treatment and dumped into Cayuga Creek.

Mr. Haseley said that such a plant would cost approximately $250,000 whereas the tapping into the city sewers would cost $100,000.

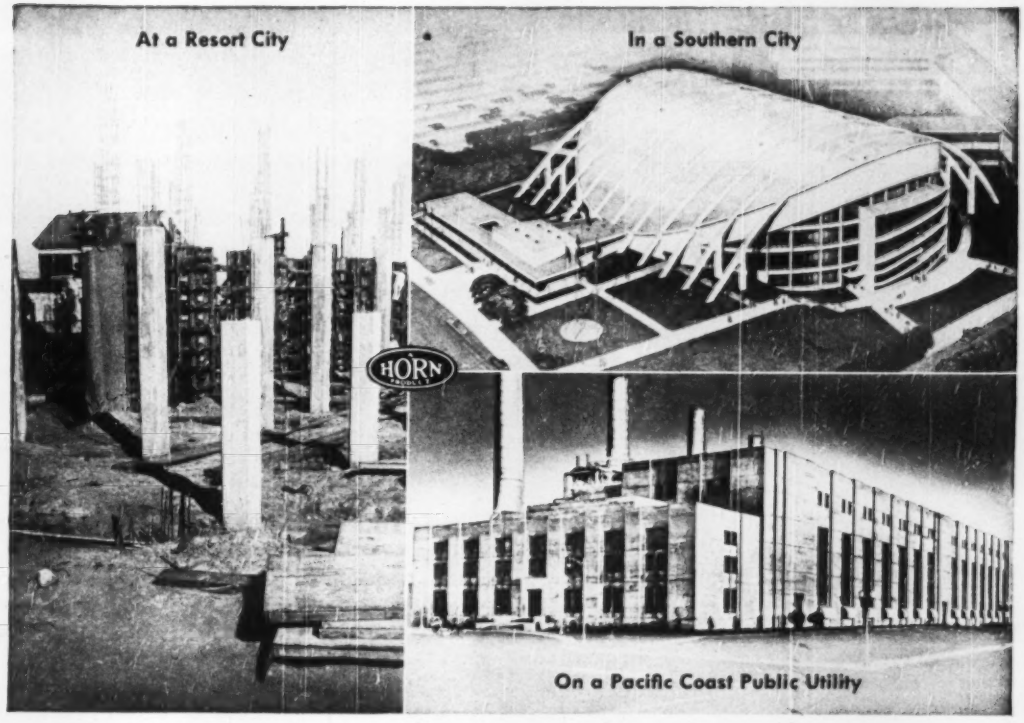
Municipal Briefs

Anti air pollution—Mayor John H. Anderson of Tacoma, Wash., has appointed Carl Rosene as air pollution director, responsible to an air pollution board, with limited powers. The ordinance for this work was passed after studies by Richard G. Tyler, professor of sanitary engineering at the University of Washington. The State Pollution Control Commission now is studying statewide air pollution, meteorological conditions.

Higher taxes—The Indiana Board of Tax Commissioners has decreed higher assessments in 22 Indiana counties. It ordered blanket increases of from five to 60 percent on various taxing units throughout the state, to equalize reassessments. Only land and improvements to real estate were included. Personal property was excluded under a 1949 state law.

Church Building—In Indianapolis, Ind., 18 churches are planning building projects cost $2,995,000.

Boston street program—Boston, Mass., has a major street program, to cost $2,000,000, which will be started this year. A total of 70 miles of streets, including four main arteries, are included: Blue Hill Ave., and Columbia Road in Dorchester; Western Ave., Brighton and River Street in Mattapan and Hyde Park. About 35 miles will be new construction, and 35 miles repairs and reconstruction.



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Satisfied Users in Salt Lake City say:

ALFRED BROWN CO.—
"Rubbing costs reduced, grain raise eliminated."

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"More re-uses of forms especially on exposed concrete work."

The Coliseum shown above was designed by Sherlock, Smith & Adams Inc., of Montgomery, Ala., in collaboration with the New York Engineers Ammann & Whitney.

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Manufacturers of materials for building maintenance and construction—established in 1897

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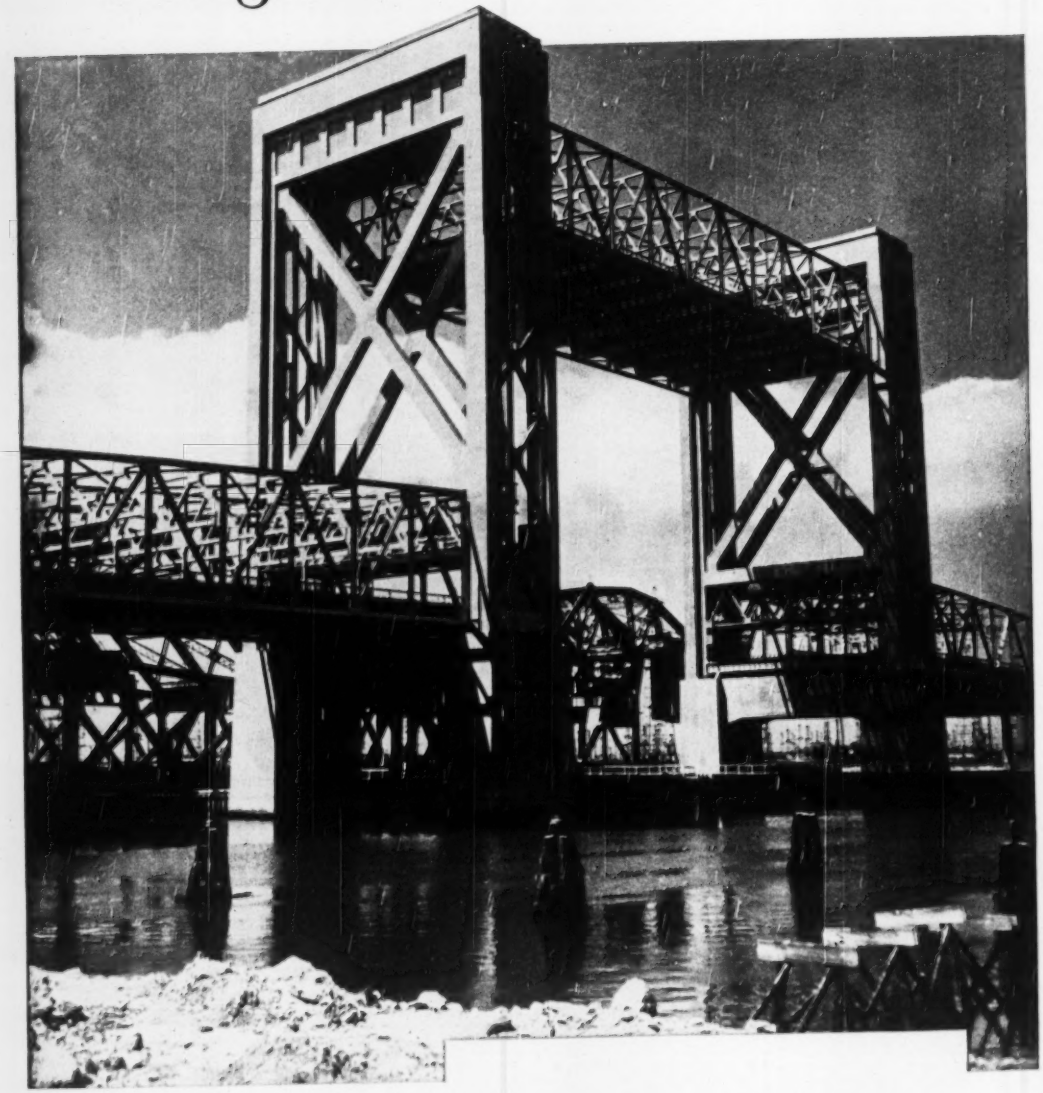


The Commodore Schuyler F. Heim Bridge spans Cerritos Channel between Long Beach and Terminal Island, California.

Westinghouse

EQUIPMENT FOR MOVABLE BRIDGES

FINGER-TIP CONTROL

ON AN 800-TON SPAN

TOP LIFT SPEED IS 74 FPM

California's Terminal Island Bridge represents one of the most modern applications of electrical equipment in the nation. And it's Westinghouse throughout.

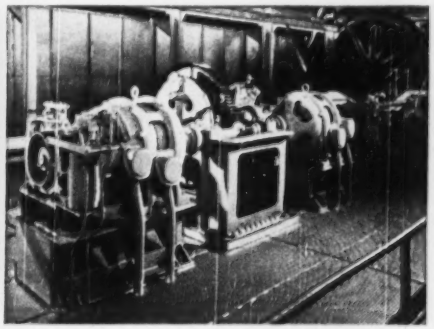
Its many electrical improvements make operation fast and certain. The six-lane traffic span is raised 125 feet in 2¼ minutes. Top lifting speed is 74 fpm, yet the lift is slowed quickly and smoothly to 7 fpm for seating. All 800 tons of the span, reduced to a one-ton lift by counterbalancing, are controlled by the operators finger tips at the main control panel.

Level raising is assured by two pairs of span hoist and tie motors—consisting of four 100-hp Westinghouse wound-rotor motors in a synchro-tie arrangement. The main switchboard controls these motors and also meters and distributes the incoming electric power.

Westinghouse makes the complete electrical equipment for every type of movable railroad and traffic bridge—from the single bascule to the large vertical lift. With this background, our bridge engineering specialists work with you to save time and insure a co-ordinated electrical system.

If you have CONSTRUCTION AHEAD that includes movable bridges, call your nearby Westinghouse office. J-94819

800-ton span is raised from this modern, all-electrical main control desk. Indicators on vertical panel show height and level of span; the meters show span speed, motor power load, and direction of power-flow in synchro-tie system. Desk switches include main hoist master-switch, reversing switch and leveling controllers for emergency operation.



In the South tower machinery room, one motor lifts the span while the other motor shown controls rate of lift. A similar team operates in the North tower. In each tower, the lifting cables pass over two drums (far right background). Also shown here are the differential, center, and magnetic brake, far left.

MEN AND JOBS

Charles W. Bryan Jr., former vice-president and general manager of the Federal Shipbuilding & Drydock Co., Kearny, N. J., has been elected president of the Pullman-Standard Car Manufacturing Co., Chicago. A civil engineering graduate of Washington University, St. Louis, in 1912, Mr. Bryan was engaged in the construction of Hell Gate Bridge and on the 7th Avenue Subway in New York City before going to the Federal Shipbuilding Co. in 1917 to take charge of construction of the company's shipyard at Kearny. He continued with that company until 1948 when he was loaned to the Economic Cooperation Administration as a consultant on shipbuilding in Italy. Mr. Bryan served as an ASCE director, 1945 to 1947.

Ridgway M. Gillis has been appointed California's acting deputy state highway engineer, succeeding **Fred J. Grumm**, retired. He formerly was assistant state highway engineer. A graduate of Whitman College, Wash., he received a C.E. degree from the Massachusetts Institute of Technology. He served with the Washington State Highway Department from 1912 to 1926, and was on the staff of the Pacific Bridge Co. until 1929. His work with the California Division of Highways began in 1929 when he became assistant construction engineer. Thereafter he served as district engineer in Fresno, and as state construction engineer.

George G. Edwards, manager of the Texas highway planning survey after nearly 29 years of service, has gone with the Uvalde Rock Asphalt Co. H. P. Stockton, Jr., civil engineer, succeeds him.

William Hunt has been named acting city civil engineer for Indianapolis, Ind., replacing M. G. Johnson, resigned.

Donald E. Hiltz, has been transferred from Kentville, N. S. where he had been a transitman to St. John, N. B. as assistant engineer for the Canadian Pacific Railway. He is a graduate in civil engineering from Acadia University, Wolfville, N. S. and took a year's course at Nova Scotia Technical College, Halifax, N. S.

Pennsylvania's Department of Health has announced the appointment of two junior sanitary engineers. They are **Walter R. Hager**, Meadville, and **John E. Waters**, Pottsville. The agency announced the withdrawal of **Thomas E. James, Jr.**, Philadelphia, as sanitary engineer.

CONFERENCE IN FIELD—New Jersey Turnpike Engineers discuss construction progress as they view rock excavation from atop Laurel Hill, near the Hackensack River. At extreme left and right are Dean Edwards and Guy Kelcey of Edwards & Kelcey; second from left is Edward Quirin, president of F. R. Harris, Inc. The fourth man is Percey McCallum, resident engineer on this section of the work.

C. E. Frudden, consulting engineer of the Allis-Chalmers Mfg. Co., Tractor Division, has been awarded the Iowa State College Marston Medal. He took his engineering degree at Iowa State in 1909 and did graduate work at Columbia. With C. W. Hart, another Iowa State alumnus, he is credited with being founder of the tractor industry.

Lieut. Col. Lawrence J. Lincoln, city district engineer, at Kansas City, formerly Denver district engineer, will have charge of the flood control and river development work of the Corps of Engineers in the Kansas City area, which comprises more than 110,000 sq. mi. and includes roughly ⅓ of the State of Missouri, approximately the northern half of Kansas, a portion of southwestern Iowa, the southern ⅓ of Nebraska, and the eastern ¼ of Colorado.

Marion R. Cochran, Gene T. Davis and **Kenneth E. Mauney**, recent graduates of N. C. State College, have joined the Ninth Division of the North Carolina Highway Department, with headquarters at Shelby.

R. E. Roberts has joined the Illinois State Water Survey as assistant engineer in charge of laboratory hydraulic and hydrologic studies. Howard L. Wakeland is an engineering assistant in the engineering research subdivision.

Donald C. Stackpole has retired as district engineer of the Pennsylvania State Highway Department in charge of the five-county Southeastern Pennsylvania area. He is a veteran of 41 years service in the department, and at 69 the second oldest employee in point of service. He was at one time assistant chief engineer in charge of maintenance for the entire state. Edwin J. Kinney, who has been Stackpole's assistant for District 6, has been named to succeed him.

How to cut your overhead —underground

IF you think that there aren't ways of saving on foundation costs, you'll be surprised when you see what Monotube Steel Piles can do for you.

Monotubes are manufactured in 3 tapers; from a standard 8" nose they taper uniformly to any of four standard diameters, all extendible for an indefinite length to satisfy conditions known or unforeseen. Gauge of metal may be varied for any section as needed—providing economical construction. These light, sturdy tubes result in structurally sound, lasting installations. Jobs started with Monotubes can be *completed* with them—avoiding delays, complications, and undue expense.

And Monotubes are adaptable to practically any type of structure. Their fluted, cold-rolled construction adds strength and stability to resist severe driving as well as uplift, lateral and torsional forces.

Moreover, Monotubes are light in weight which simplifies and speeds handling. They require no special driving equipment. Cut-offs can be made easily, with minimum waste. These and other advantages mean foundations will *cost less* per ton of load supported.

For complete information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

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Monotube Foundation Piles

PROVEN PROFIT ON BIG JOBS

A million yards of excavation or just a hundred . . .

Thousands of tons of steel to erect or only a few . . .

A mile of trench to dig or only a block . . .

Concrete to place for a huge dam or for a small culvert . . .

BIG or small, your jobs bring in bigger profits if you rely on Bucyrus-Erie excavators and cranes. Their proven speed, dependability, and durability show up in bigger output per day, per month, per year. That's why, all over the world, you find Bucyrus-Eries on so many jobs . . . BIG and small.

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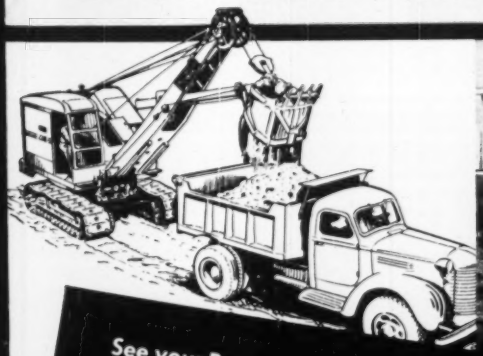
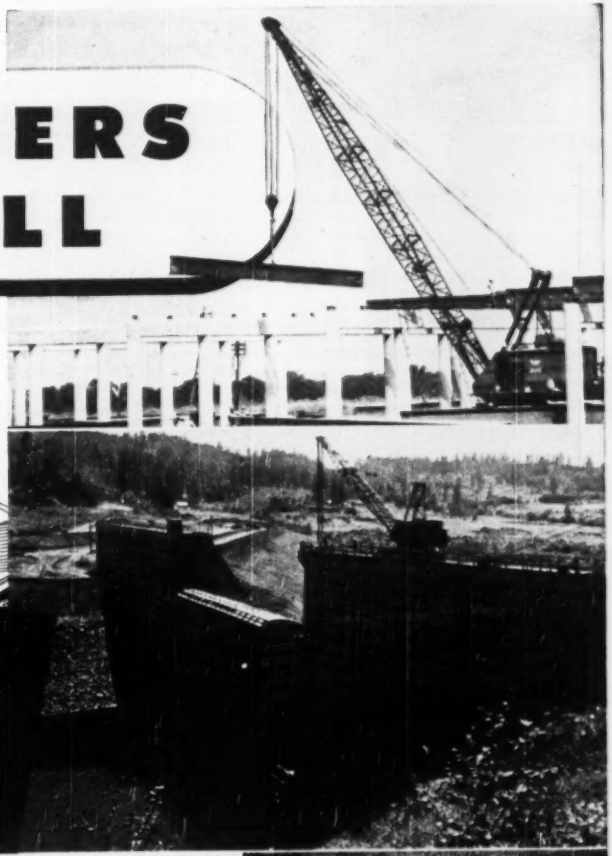
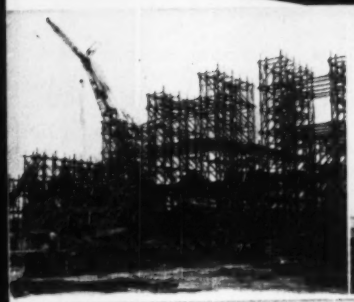
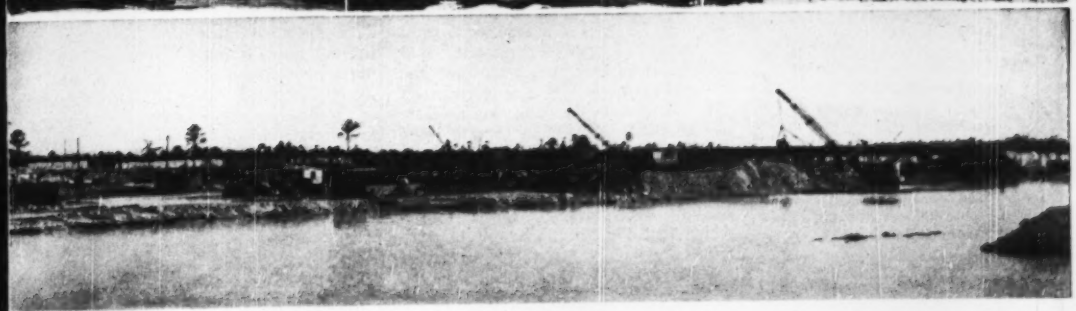
PRODUCERS OR SMALL





See your Bucyrus-Erie distributor for full information on Bucyrus-Erie gasoline, diesel, or single-motor electric ⅜ to 4 yard excavators.





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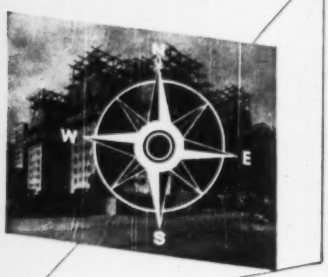

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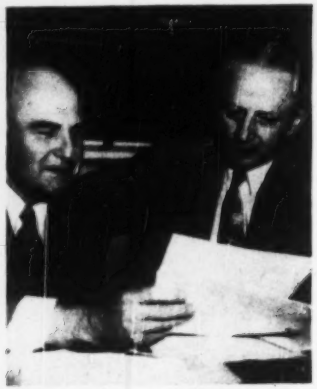


DISCUSS ENGINEER SHORTAGE—Dean Edward R. Stapley, right, of the Oklahoma Institute of Technology of Oklahoma A & M College and Dean R. L. Langenheim of the University of Tulsa discuss the current (and increasing) shortage of engineers. Both agree that, war or no war, there will not be enough trained young engineers in this country to supply the demand.

Opinions on shortage of civil engineers

Dean Thorndike Saville, New York University College of engineering: "The country will face a serious shortage of trained engineers in the next few years unless there is a marked increase in freshman enrollments."

Wm C. Knopf, Jr., assistant dean of the technological institute at Northwestern University: "It is evident that there will be acute shortages of engineering personnel in the near future because of the increased need for engineers created by mobilization."

Dean R. L. Langenheim of the college of engineering at the University of Tulsa, Okla., and **Dean Edward R. Stapley** of the Oklahoma Institute of Technology at Oklahoma A & M College: "There is a critical need right now for all types of engineers," and the reasons they give, aside from the draft, are fewer high school graduates in recent years; the profession has been broadened; and many young high school graduates believe that there is more opportunity in other fields.

Harry J. Armsby of the U. S. Department of Education, is quoted as saying that the nation's supply of engineers would reach a critical low in 1953, even if there had been no Korean war.

Offers $1500 in prizes to senior C.E. students

The "Eschenbrenner Awards", three annual $500 prizes for senior civil engineering students, have been announced by Universal Concrete Pipe Co., Columbus, Ohio, the sponsor. The purpose is to stimulate original thinking in the design, fabrication and use of concrete products.

The awards, as announced by H. X. Eschenbrenner, president of the company, are open to all senior civils in recognized institutions east of the Mississippi, including West Point, Annapolis and the Coast Guard School. Papers must be submitted to the company by March 31 next.

The subject matter of the papers must relate to non-monolithic concrete products.

Educational Notes

Jobs for grads—Dean Daniel V. Terrell of the University of Kentucky has announced that of the 328 recent engineering graduates of his school, 70 percent had located positions by June of this year, and now all have had job opportunities in their field. Dean Terrell says that an increase in industrial requirements and a decrease of graduates accounts for the good employment experience of the current graduating class.

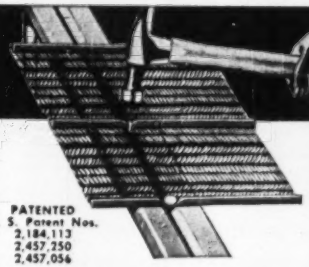
Award winner—Prof Gustave P. R. Magnel of the University of Ghent, Belgium, with Eugene Freyssinet of Paris, has been awarded the Frank P. Brown Medal by the Franklin Institute, Philadelphia, Pa. It is for their outstanding development of engineering techniques for prestressed concrete.

Foreign students depart—Several months of research and study at Massachusetts Institute of Technology have ended for 71 graduate engineers visiting the United States from 25 European countries, the Near and the Far East. About 59 of the engineers are making a tour of American industrial centers under the auspices of the National Association of Manufacturers. Their course at MIT was provided by the National Student Association.

Cost estimating—Raymond Welch, chief estimator of Seth E. Geim & Associates, general contractors of Memphis, Tenn., will teach a night

(Continued on page 69)

THIS Is Why-



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C Tournapulls consistently loaded 10 pay yards of sand in an average of 42 seconds. This is typical performance, report officials of Currahee Construction Co., LeTourneau equipment users for over 4 years.

hauling Florida sand on 2400-foot cycles

Currahee Construction Company of Toccoa, Georgia, set a fast production pace on a 513,000-yd. short-haul, road-fill contract at Haines City, Florida, with 3 high-speed, rubber-tired C Tournapulls. The "C's" got to the job fast, driving 480 miles from Marietta, Ga., in 30 hours (an average of 16 m.p.h.) . . . and they did the work fast!

Here was the assignment. To speed tourist traffic through Central Florida, the State Highway Dept. was extending Route 25 across a shallow, mud-filled lake. Plans called for progressively removing 113,000 yds. of muck to reach stable footing, then placing 400,000 yds. of sand for the roadbed. Currahee used two ¾-yd. draglines to move the muck, and their three 13.5-yd. C Tournapulls to build the fill. Typical production figures show how the job was finished well ahead of schedule:

On 2400′ cycles—with 600′ of haul over loose, shifting sand and 600′ over new sand roadbed—each Tournapull completed a round trip every 4 minutes . . . regularly made 15 trips an hour. Average hourly production for each pusher-loaded "C" was 150 pay yards . . . average daily production per unit was 1500 pay yards.

"Best dirtmoving tool on the market," says Company President J. R. Herndon. "It will handle sand or clay where crawler equipment cannot be economically used. On this job three C Roadsters on 2400′ cycle, hauling 10 pay yards of sand each trip, are so fast they wait for HD19 Pusher."

Power-proportioning differential—PLUS extra traction and flotation of big 21.00 x 25 low-pressure tires — kept Tournapulls lugging through soft fills. Positive power steer, 90° turning ability, and heavy-duty airbrakes permitted high-speed maneuvering in close quarters . . . speeded haul cycles . . . helped move more yards per day . . . at lowest-net-cost-per-yard. See for yourself what Tournapull's faster cycles and faster moves can mean to YOUR profits. Call or write your LeTourneau Distributor TODAY!

As dragline digs out muck, Tournapulls follow to fill in with heaped loads of sand. On average, Currahee's 3 "C's" placed 450 yds. per hour, 10 hours per day . . . in all, moved 400,000 yds. to build fill.

Tournapull—Trademark Reg. U.S. Pat. Off.

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MORE WORK PER HOUR WITH RUBBER-TIRED POWER

course in cost estimating at the University of Missippi school of engineering. Instruction by practicing engineers is part of a system of clinical education being developed by the university in an effort to unite general theory with practice like the teaching in medical schools.

Highway course completed—They came from 18 countries—some 55 highway officials and engineers—and have now completed a course of study in the theory and practice of highway improvement and utilization. Their course was conducted by the Bureau of Public Roads.

Department head named—Tom W. Stallworth has begun his duties as chairman of the department of civil engineering at the University of Mississippi. He went to the School of Engineering from Texas A. & M. where he was associate professor of civil engineering. Prof. Stallworth replaces F. H. Kellogg, who is now dean of engineering at the university.

Saad to Syria—Michael Assad Saad, assistant professor of civil engineering at Johns Hopkins University, Baltimore, has been named by the Department of State for a grant-in-aid enabling him to serve as a visiting professor at Aleppo School of Engineering, National University of Syria, for one year. Prof. Saad is the second visiting professor to Syria under the program for exchange persons authorized under Public Law 402.

Newark faculty changes—David H. Mangnall of Prospect Park, N. J., has been appointed evening supervisor of Newark College of Engineering, Newark, N. J. Other appointments include William Hazell, Jr., as dean of administration, and Prof. Frank A. Grammar as acting dean of students and director of admissions.

Hydrologic bibliography—Senior and graduate students of the course in hydrology at the Carnegie Institute of Technology have prepared an extensive abstract of selected bibliographical material on hydrology for the years 1937-1949. It consists of 69 typewritten pages.

Utilizing solar energy—The extensive use of solar energy may become a practical necessity within the next century, engineers and architects attending the recent symposium on heating with solar energy at Massachusetts Institute of Technology were told. They were warned by scientists that dwindling reserves of gas, oil and coal will force the use of other resources for fuel.

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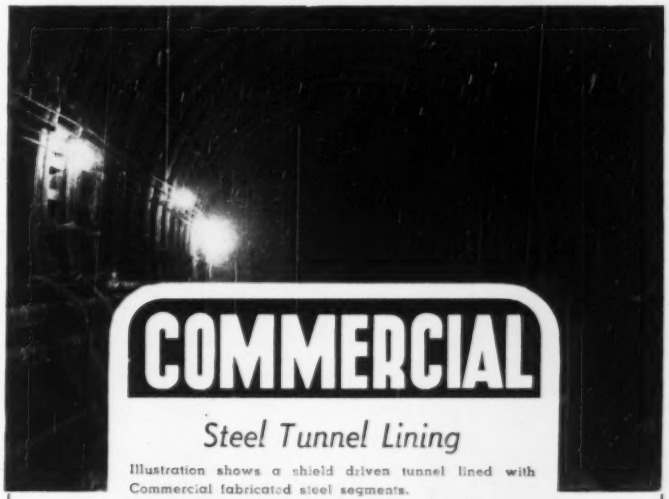

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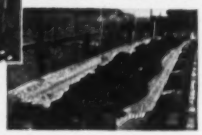

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ELECTIONS AND ACTIVITIES

D. A. R. McCannell, city engineer of Regina, Sask., has been elected president of the Canadian Institute on Sewage and Sanitation. Clarence S. Anderson, commissioner of works, Tisdale Township, South Porcupine, Ont., was elected vice-president, F. McArthur, Islington, Ont., and A. J. Desauniers, Lacime, Que., as trustees. Don Fraser, Canadian Ingersoll-Rand Co. Ltd., Toronto, was elected chairman of the executive committee of Canadian Sanitation Equipment Association, at the same convention.

Hill R. Healan, Griffin city manager, has been elected chairman of the Georgia chapter of the American Public Works Association. W. P. Phillips, assistant city engineer, Augusta, was named vice-president, and John Ball, Jr., Fulton County sanitary department chief, secretary.

The appointment of Gordon E. Gaffney of Lawrence, Mass., as secretary of the New England Road Builders' Association has been announced by Daniel J. O'Connell of Holyoke, president. Mr. Gaffney succeeds Frederick Hoitt of Swampscott, who was secretary 20 years until his death a year ago.

A group of consulting engineers of Utah has organized the Intermountain Institute of Consulting Engineers for "the advancement of the engineering profession and the enforcement and improvement of engineering laws." Membership is limited to those who are actively engaged in professional engineering. LeRoi C. Chadwick was elected president and George W. Poulsen Jr. was chosen secretary. Headquarters, Salt Lake City Utah.

The offices of The Association of Professional Engineers of Ontario, licensing body for 8,000 registered professional engineers in the province, have been established at 256 Avenue Road, Toronto.

T. M. Merland is executive director and J. M. Muir is registrar and secretary. In addition to President E. V. Buchanan, executive officers are: W. J. W. Reid, past president, Hamilton; W. H. M. Laughlin, first vice-president, Toronto; O. D. Johnston, second vice-president, Toronto; H. E. Barnett, Niagara Falls; J. L. Lang, Sault Ste. Marie; W. L. Sagar, Toronto; J. E. Buchan, Belleville; C. K. Fraser, Peterborough; R. M. P. Hamilton, Toronto; H. J. Chambers, Toronto; W. J. Gilson, Toronto; O. W. Titus, Leaside; O. W. Ellis, Toronto; G. R. Lord, Toronto; J. R. Montague, Toronto; J. W. Baker, Virginiatown; A. E. Cave, Geraldton; M. W. Hotchkin, Kirkland Lake.

CALENDAR

National Council of State Boards of Engineering Examiners, Congress Hotel, Chicago, Ill., Oct. 9-11.

Federation of Sewage Works Associations, Hotel Statler, Washington, D. C., Oct. 9-12.

American Society of Civil Engineers, fall meeting, Congress Hotel, Chicago, Ill., Oct. 11-14.

Virginia Highway Conference, VMI, Lexington, Va., Oct. 12-13.

Structural Engineers' Association of California, Hotel Del Coronado, Coronado, Calif., Oct. 12-14.

N. C. section, American Society of Civil Engineers, N. C. State College, Raleigh, Oct. 14.

S. W. section AWWA, Roosevelt Hotel, New Orleans, La., Oct. 15-18.

Public Works Congress and Equipment Show, 9th Regiment Armory, New York City, Oct. 15-18.

Water conference, Engineers' Society of Western Pennsylvania, Hotel William Penn, Pittsburgh, Pa., Oct. 16-18.

National Association of Housing Officials, Detroit, Mich., Oct. 16-19.

Construction section, National Safety Congress, Stevens Hotel, Chicago, Ill., Oct. 17-18.

National Conference on Industrial Hydraulics, Sherman Hotel, Chicago, Ill., Oct. 18-19.

Pennsylvania section, AWWA, Roosevelt Hotel, Pittsburgh, Pa., Oct. 18-20.

Engineers' Council for Professional Development, Tudor Arms Hotel, Cleveland, Ohio, Oct. 20-21.

National Public Health Engineering Conference, University of Florida, Gainsville, Oct. 23.

Structural Clay Products Industry, Broadmoor Hotel, Colorado Springs, Colo., Oct. 23-26.

American Institute of Steel Construction, Shamrock Hotel, Houston, Tex., Oct. 23-26.

American Concrete Institute, Mayflower Hotel, Washington, D. C., Oct. 24-26.

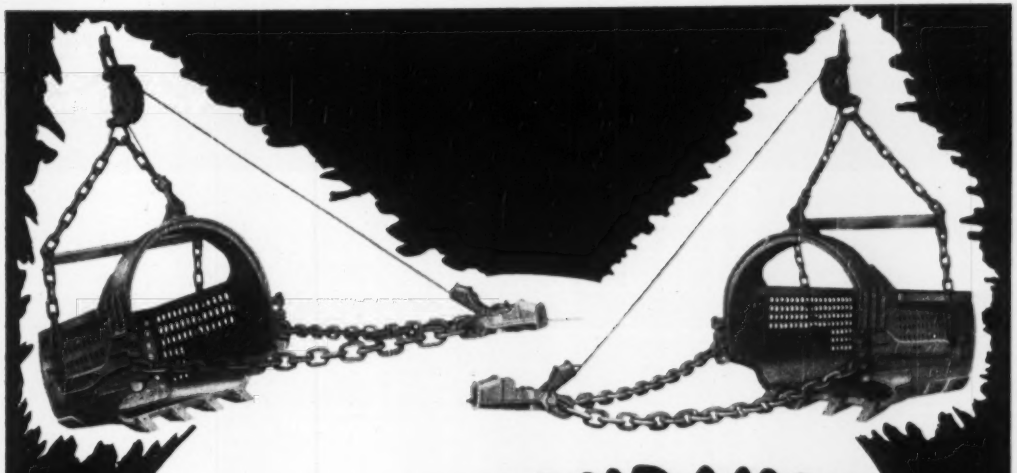
California section, AWWA, U. S. Grant Hotel, San Diego, Calif., Oct. 24-27.

Carolinas Branch, A.G.C., White Sulphur Springs, W. Va., Oct. 30-31.

Chesapeake section, American Water Works Association, DuPont Hotel, Wilmington, Del., Nov. 1-3.

Florida and Cuban sections, American Water Works Association, Ft. Lauderdale, Fla., Nov. 13-15.

National Reclamation Association, Hotel Davenport, Spokane, Wash., Nov. 15-17.



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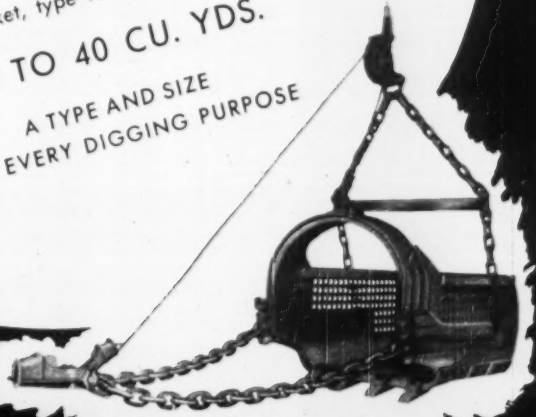

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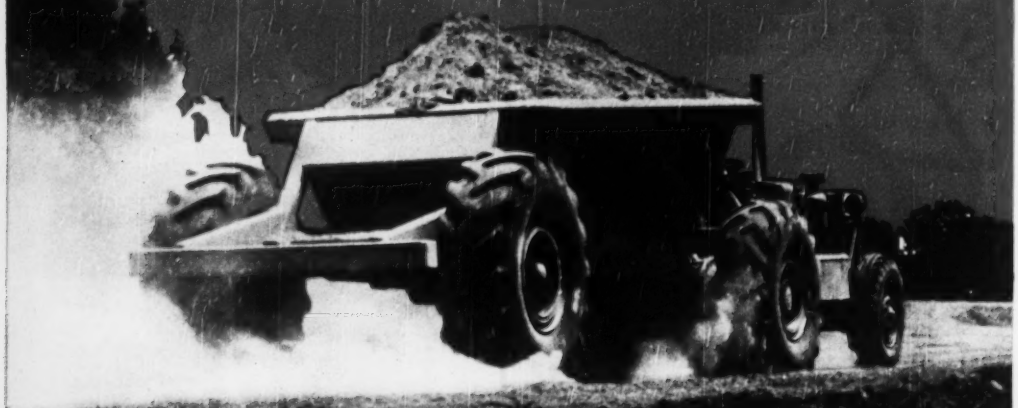

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OBITUARY

Orrin Randolph, 69, civil engineer and developer in the West Palm Beach, Fla., area, died Sept. 17, in Henderson, N. C. He moved to Florida in 1911 as chief engineer for the Palm Beach Farms Co. He laid out the town of Lake Worth and built the light and water plant there.

Joseph J. Sears, 59, died Sept. 11 at Halifax, N. S. He was superintendent of the transit systems of the Nova Scotia Light & Power Co., and was a civil engineering graduate of the Nova Scotia Technical College.

Howard Raymond Pursifull, 53, resident engineer for the Texas State Highway Department at Jasper, died there Sept. 13. He had served as resident engineer for the Texas State Highway Department for twenty-three years.

Gerald T. Oravetz, 40, assistant state engineer in charge of the Billings office of the Montana water resources survey, died Aug. 30.

Col. William Nelson Sr., 63, a civil engineer for the city of Seattle and a retired Army officer, died Sept. 12 in Chicago.

William E. Moore, of Henderson, Ky., and **John R. Erwin,** of Dekoven, state highway engineers, were killed in a truck-automobile collision near Elkton on Sept. 15.

Camille S. d'Invilliers, a construction engineer, died on Sept. 12 in Philadelphia, Pa. He was a graduate of the University of Pennsylvania and for a number of years had been with the contracting firm of McMenamin and Finn, Philadelphia.

John McAllister, 63, a retired civil engineer of Media, Pa., who had been with the Pennsylvania Railroad, died Sept. 12.

Willis H. Mead, 76, president of Whiting-Mead Co., a Los Angeles construction company he helped found in 1898, died recently.

Frank X. Sadlier, 62, who resigned in June as public works director in Springfield, Ohio, a post he held for many years, died Sept. 14.

Bruns L. Durst, 78, civil engineer, on Sept. 20 was found dead in a new subdivision in Houston, Tex., where he had been surveying land. A graduate of Texas A & M College, Mr. Durst had been a civil engineer in Harris County for more than 30 years.

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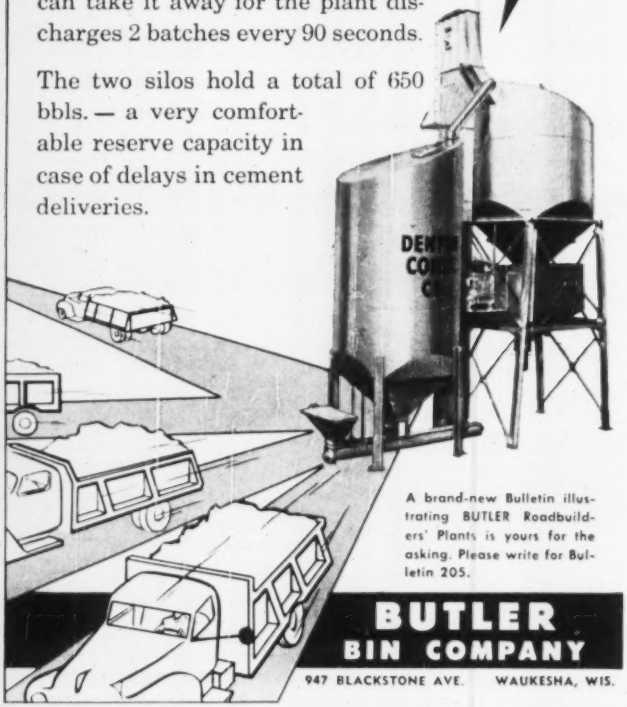

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Clement Bassett Corey, 67, civil engineer with the Seattle, Wash., district office of the Corps of Army Engineers, died in Seattle Sept. 14.

Hugh Lucas Scott, 64, United States Army Engineers administrative offices' traffic manager at Galveston, Tex. died there Sept. 17.

Acceptance of second bid permitted in Montana

A contract awarded by the Montana State Board of Examiners to the second low bidder has been judged a "discretionary matter" by a ruling of the district court at Helena. The decision ends a year of litigation over a paving job at Montana State College in Bozeman.

On Sept. 29, 1949 the examiners awarded contract for the job to the second low bidder, the Standard Const. Co. of Bozeman, on a bid of 28,922.

The Blacktop Construction Co. of Billings was lowest bidder at $27,561. Blacktop charged the examiners with acting "in violation of the law" and obtained an injunction preventing the award of the contract to Standard.

In deciding the case, Judge George W. Padbury ruled that the board of examiners had "the right to select the best qualified bid, and the second low bid in this case was the best because the low bidder was not qualified. The board of examiners, in originally denying the contract to Blacktop said it did so because the firm was having "labor trouble."

U. S. inventory controls: construction materials

The inventory controls ordered by the National Production Authority to curb commercial stockpiling of 32 important war materials includes the following construction materials. Stocks of the controlled materials must be limited to a "practicable minimum working inventory."

Construction materials affected are: portland cement; gypsum board, sheathing and lath; lumber; softwood plywood; aluminum; gray iron castings and malleable iron castings, rough and semi-finished; steel, including structural shapes and piling, plates, rails and track accessories, bars including reinforcing and cold-finishing bars, standard pipe and tubing, wire, wire rods and wire products, galvanized sheet and strip steel and rough forgings; nickel, alloyed or unalloyed; copper, sheet and strip, alloy and unalloyed tube and pipe, copper wire and wire products; slab zinc and zinc dust and oxide.

Engineers Confirm in the Field the Strength and Accuracy Technical Editors Found in Gurley Aluminum Alloy Transits

Gurley Instruments

An article describing the advantages of aluminum construction of Gurley instruments where accuracy, strength, lightness and freedom from vibration are essential.

Probably the outstanding incentive in the application of aluminum alloys to surveying instrument construction has been the prospect of weight reduction. Consider the labor to be saved by a surveying party which has to carry these instruments about day after day, often over rough country, when the weight can be reduced by at least ...

... metals and structural metals been so effectively and economically combined. A further result of the use of aluminum alloys through this method of manufacture is a decrease in the number of parts. Minor assemblies have been combined into single parts, permitting more accurate manufacture and insuring a permanence of adjustment of these parts in service. Reduction in ductile tools ...

... aluminum alloys have shown, not only greater structural strength and durability, but greater stability under conditions which induce vibration. That this should be so is readily apparent, since the light weight greatly reduces the momentum of the instrument and consequently the amplitude of vibration.

Gurley transits constructed of the light alloy metals have been used on all kinds of work, meeting successfully the requirements of durability ... exceedingly ...

Aluminum Used Successfully in Precision Instruments

A PICTORIAL STORY

Requirements of accuracy during a long service life are controlling factors in selection of materials for engineering and surveying instruments.

● IN THE MANUFACTURE of precision instruments, the selection and careful processing of materials is of prime importance. Accuracy as well as long service life with a minimum of adjustment and repair are the quality standards that must be met, and to meet them, astute materials engineering coupled with expert workmanship are required. Perhaps no better example of the combination of these two factors can be found than at W. & L. E. Gurley, Troy, N. Y., where precision instruments are produced not only for engineering and surveying, but also for other fields such as meteorology and aeronautics.

... machining (4) good ductility, (5) relatively good corrosion resistance, especially in sulfur atmospheres, and (6) does not distort nor grow with age. The aluminum alloys most used at present are 14SW, 61ST, 356 and 15 ...

A thorough test program on ... sures against any differences in accuracy within a temperature range of —80 F and +165 F.

The accompanying pictures illustrate a number of the steps involved in the production of various parts making up the transit.

Combining durability and lightness with precision for surveying transits

By David W. Yost
Editor, The Gurley Magazine

MANY surveying instruments built by W. & L. E. Gurley, Troy, N. Y., are accurate within one second of arc. If projected, this represents a maximum error of ¼ inch in a mile.

However, precision is not the only requirement of these instruments. At least three other major factors influence the design and choice of materials for this type of equipment.

In the first place, a surveyor's transit must not only be accurate, but must maintain its accuracy over an indefinite period of years despite all works of weather and climatic conditions —heat, sub-zero temperatures, dampness, dust or salt-saturated atmospheres.

Second, it must withstand rough usage. This is outdoor equipment subjected to impact and abrasion.

The third requirement—no less important than the other ...

... desirable features has been by turning to aluminum for a major group of components. And since aluminum has been picked to fulfill the physical and mechanical needs of these surveyor's transits, it is not surprising that several of the most important parts are being produced most economically by die casting.

Die cast aluminum parts include the truss standard, telescope housing and leveling ... fers additional weight saving advantage, even as compared with sand cast aluminum, due to the thin, uniform wall section which is practical by die casting.

This pioneering instrument builder has used aluminum die castings wherever possible; this is one of the few production short cuts possible in a manufacturing operation characterized by extensive machining, finishing and assembling opera-

FROM AN EXPLORER:

"Have been using your instruments since 1906, which I purchased for surveys in Mexico—and they are as good as ever."

FROM AN ENGINEER SOMEWHERE IN EUROPE:

"Your instruments can take it. I have been using a Gurley Transit here in Europe for the past year under the roughest kind of treatment and it is still in perfect adjustment."

FROM A COMBAT ENGINEER IN WORLD WAR II:

"I spent three years overseas as chief of a survey party. We were required to do very accurate work. We used Gurley 20-second transits and after being dropped and about everything else, they still did work up to par."

From the first model

—built in 1876 and retired after 50 years of service—Gurley Aluminum Alloy Transits have met every field requirement for strength, lightness, freedom from vibration and permanent accuracy—in heat, cold and the roughest treatment. For complete details about Gurley instruments, write for your free copy of Catalog 50.

GURLEY
Surveying and Scientific Instrument Makers
Since 1845

W. & L. E. GURLEY, UNION PLAZA, TROY, N. Y.

Surveying and Engineering Instruments, Hydraulic Engineering Instruments, Standard Precision Weights and Measures, Paper and Textile Testing Instruments, Reticle Making Facilities, Aeronautical Navigating Instruments and Meteorological Instruments.

Contractor reports 30% more work with ADAMS No. 610

FRESHOUR BROS.
CONTRACTING CO.
P. O. BOX 77
SWEET HOME ARK.
June 30, 1950

J. D. Adams Manufacturing Co.
217 S. Belmont Ave.
Indianapolis, Indiana

Dear Sirs:

We wish to report how well pleased we are with our 610 Adams Motor Grader that we purchased over a year ago. This machine has spread the base gravel, help mix the mineral aggregate and spread all the bituminous material on thirty-five miles of State highways to date.

We have found that this machine will do at least thirty per cent more work than any other heavy-duty machine that we have ever owned or rented.

It is a pleasure for us to recommend it to any one in the market for a motor grader.

Yours truly
FRESHOUR BROS.
By Ernest Freshour

● Read what Freshour Bros. Contracting Co. has to say about its Adams No. 610 Motor Grader.

This experience is typical. King of all heavy-duty motor graders the Adams No. 610, with 100 H.P. diesel engine, has the weight, power and speed to handle toughest grading jobs faster, easier and at lower cost than any other graders on the market.

Your local Adams dealer will be glad to give you complete information on the No. 610, as well as the entire Adams line.

J. D. ADAMS MANUFACTURING COMPANY · INDIANAPOLIS, INDIANA

Make your next motor grader an ADAMS

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
November Materials and Labor Prices will appear in the November 9, 1950 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots incl. $1.00 per bbl. for bags, cash. dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over 50 c.y., del.
	Cloth	Paper	Bulk	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand gray	Lt. wgt. agg.	
Atlanta	....	$3.43	$3.19	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.186	$0.186	$11.00
Baltimore	....	3.51	3.24/3.43	2.40‡a	2.40‡a	1.95‡a	2.60‡a	2.70‡a	2.45‡a	2.45‡a	.16	.16a	10.25
Birmingham	....	3.00	2.68	2.24	2.24	1.84	2.50	2.50	1.00	1.20	.145	.145	7.75
Boston	....	3.67	3.41	2.50a	2.50a	2.50a	1.60a	1.70a	....	....	.196	.205a	10.45h
Chicago	....	2.99	2.74/2.98	2.75‡b	2.75‡b	3.40‡b	2.75‡b	2.75‡b	2.00‡	2.00‡	.22	.22b	11.00
Cincinnati	....	3.34	3.18	2.00‡c	2.25‡c	1.90‡c	2.00‡h	2.00‡h	1.80	1.80	.19	.205	10.15f
Cleveland		N. A. in C. L.		1.90f	1.65f	1.55	3.65‡a	3.65‡a	2.75‡	2.75‡	....	.23	13.00g
Dallas	$3.54	2.74	2.49	2.00	2.15	1.75	2.10	2.15	....	....	.089e	.125	9.30
Denver	....	3.74	3.49	1.85	2.00	1.15	....	....	....	....	.20	.23a	9.65
Detroit	....	3.10f	2.85	3.50‡b	3.50‡b	3.25‡b	3.60/3.75‡	3.60/3.75‡	3.75‡	3.75‡	.18	.19a	9.85f
Kansas City	....	3.25	2.98	1.90	1.90	1.50‡	1.95a	1.95a	....	....	.175ag	.215c	10.40‡b
Los Angeles	....	3.72a	3.32a	2.00‡a	2.10‡a	1.85‡a[c]	1.98‡a	1.98‡a	....	....	.11f	.215	10.00Am
Minneapolis	....	3.55cd	3.27cd	2.30‡ag	2.30‡ag	1.35‡ag	2.40‡ag	2.40‡ag	....	....	.23b	....	10.90f‡
Montreal	....	2.56ac	2.41ac	....	....	1.90n	.85aj	1.10aj	....	....	.22	.20a	9.05ak
New Orleans	....	3.05e	2.70e	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.40
New York	....	3.61	3.34	2.35bk	2.35bk	1.45bk	2.35bl	2.35bl	....	....	....	....	11.00an
Philadelphia	4.05/4.35‡	3.25/3.55‡	2.97/3.27‡	2.55‡	2.65‡	2.05‡	2.00‡	2.05‡	1.75	1.65	.22/.25	....	11.15
Pittsburgh	3.90	3.18	2.85	2.05‡	2.05‡	2.00‡	2.50‡	2.50‡	2.05	2.05	.22d	.22d	11.00
St. Louis	....	3.14/3.25b	2.89/2.95b	2.60/2.80‡am	2.60‡am	2.20/2.60‡am	1.60j	1.60j	1.15	1.15	.215	.25ca	9.40
San Francisco	....	3.39	2.99	1.86	1.86	1.96	1.96	....	....	....	....	.26c	10.75c
Seattle	....	3.55a	3.05a	2.75‡bm	2.75‡bm	2.75‡bm	3.50‡bm	3.50‡bm	....	....	.22j	.3135f	10.25j

‡ Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers' comm. not incl. *d* Dealers sell only LCL. *e* Plus switching charges. *f* Paying up to $3.80 for cement brought in from outside sources.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* δ tons or more. *e* ¼". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5½ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10-100 cu. brackets. *e* 2,000 lb. conc. *f* 2500 lb. comp. *g* Aver. haul 7–9 mi. zone. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For cloth bags, add $1.05 per bbl.; 25¢ refund allowed for each returnable bag; for paper bags add 27¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.50†	Buffington, Ind.	$2.30	Steelton, Minn.	$2.40	Muskegon, Mich.	$2.60†
Clinchfield, Ga.	2.50†	Independence, Kan.	2.30	Leeds, Ala.	2.25	Saginaw, Mich.	2.45†
Kingsport, Tenn.	2.50†	Hannibal, Mo.	2.35	Duluth, Minn.	2.40	Wyandotte, Mich.	2.50†
West Des Moines, Iowa	2.55†	Northampton, Pa.	2.40	Hudson, N. Y.	2.40	Buffalo, N. Y.	2.50†
Nazareth, Pa.	2.50†	Universal, Pa.	2.40	Alpena, Mich.	2.35†	Oswego, N. Y.	2.50†
Bath, Pa.	2.50†	Waco, Tex. (+ 10¢ tax)	2.30	Detroit, Mich.	2.50†	Cleveland, O.	2.50†
						Toledo, O.	$2.50†
						Milwaukee, Wis.	2.60†
						Green Bay, Wis.	2.60†
						Ironton, O.	2.50
						Montreal City	2.21
						W. Winfield, Pa.	2.50†

† *Prices to hold for fourth quarter of 1950*

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	....	....	....	....	....	....	....	....	....
Baltimore	150.00‡	57.70‡	.....	$20.00	.....	$.0809	$0.14	$.08	$.16	$.08a	$.08	$0.11
Birmingham	.....	32.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	$35.50a	.1036a	.185a	.115aw	.205aw	.10a	.113a	.205a
Chicago	155.00‡a	60.00‡b	3.75/4.50‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16w	.075b	.....	.....
Cincinnati	.....	.....	.....	21.50k	.....	.095	.095	.095w	.....	.....	.....	.....
Cleveland	.....	51.00d	4.33g	24.00	36.00	24.00v	36.00v	.10w	.22w	.105	.11	.25
Dallas	e	40.00	e	23.95	42.99	.1012	.1398	26.99	47.97	.0987	.1062	.1423
Denver	.....	46.00	.....	....	....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	88.00	.....	26.65	....	12.00v	.....	.0976w	.....	.0971	.....	.197
Kansas City	e	e	e	18.05cf	....	.....	.....	.07cw	.0725w	.061e	.....	.....
Los Angeles	e	.....	e	12.50dm	.....	12.50dv	.....	14.00d	.....	12.50dv	.0775f	.1575f
Minneapolis	.....	.....	2.83h	25.50	36.00	24.00v	35.00v	24.00	35.00	.09	.12	.22
Montreal	137.00	e	e	27.00n	36.65n	16.70nv	18.50nv	16.30nw	18.30nw	13.20nv	.184nv	.225nv
New Orleans	.....	.....	.....	16.50e	....o	16.50ev	.....o	.08ew	.....o	.0775	.08	.1425f
New York	.....	.....	2.35f	23.50	25.86g	22.50v	41.88gv	.0940w	.1767gw	.0890	.0940	.1747g
Philadelphia	150.00	110.00	4.06	20.50	.....	19.50v	.....	.085w	.....	.....	.....	.....
Pittsburgh	165.00	42.00	4.50	22.00	35.00	.10	.20	27.00	39.00	.095	.09	.20
St. Louis	.....	.....	.....	19.25f	.....	.1633	.....	.0841w	.....	.15	.....	.....
San Francisco	.....	63.73e	.....	14.50g	30.00gp	14.50gkv	.....	16.50g	.....	.....	.08	.14
Seattle	.....	.....	.....	16.00A	36.50A	15.75kv	.....	18.00A	22.00kv	17.50kv	.08A	.09A

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6¢ treat. *g* 3". *h* 8¢ treat.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Englewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* Use of used drums. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 55-gal. drums. *u* Per 100 gal. *v* Per ton. *w* Per gal.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT. SHAPES— PLATE	REINF. BARS billet	RIVETS ½-in. struc- tural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.40	$3.45	$7.25		$68.00	$75.00	Not	$4.40	$5.60	$4.20	....
Chicago Area	3.40	3.45	7.25	$4.20	68.00	75.00	avail-	4.40	5.60	4.20	....
Pittsburgh Area	3.40	3.45	7.25	4.20	68.00	75.00	able	4.40	5.60	4.20	....
Buffalo Area	3.45	3.45	7.25	4.20	68.00	75.00	....	4.40	5.60	4.20	$8.85
Cleveland	....		7.25	....	.....	.....	....	....		....	8.85
Youngstown Area	....	3.45	....	....	.....	.....	....	....	5.60	....	....
Geneva	3.40		....	....	.....	.....	....	....		....	....
Los Angeles	....	4.15	....	....	.....	.....	....	....	5.60	....	....
Pueblo	3.40	3.45	....	....	68.00	75.00	....	4.40	5.60	4.20	8.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price a 5 tons to carload lot b New billet	Rail steel	Add'l switch	$ ewt for Del.	EXPANDED METAL LATH c Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING d Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No 6 & 6 wires
Atlanta	$6.03	$5.85	$5.85	$.025	$.10	$31.50	$31.50			
Baltimore	6.09	5.06f	....	....	.10	40.00	43.00			
Birmingham	5.25	5.25	5.25	.05	.15	42.00p	44.50p			
Boston	5.75k	5.56k	5.56kr	....	.10/.15	32.00	34.50			
Chicago	5.25	4.50ff	4.50ff	.0625	....	32.00‡	34.50‡			
Cincinnati	5.70r	5.54r	....	....	....	34.00zee	36.50zee			
Cleveland	5.37	4.47e	....	....	.10	34.00‡	36.50‡			
Dallas	8.15	6.10	6.10	....	....	47.85	50.60			
Denver	6.65	6.75e	....	....	....	52.00s	62.00gs			
Detroit	5.64	5.59n	....	....	.10	37.00	48.00			
Kansas City	5.65nn	5.50e	....	....	....	35.50	38.00			
Los Angeles	5.90ffkk	5.70ij	....	....	.15	44.50ff	49.50kk			
Minneapolis	5.61kk	6.87ll	6.87ll	....	.15	34.00	36.50			
Montreal	6.75n	4.75n	4.75ij	....	....	44.10h	46.80h			
New Orleans	....	5.40ek	.....	.05	.10	38.50	41.00			
New York	5.75e	5.69	5.54	....	.20	35.50st	38.00st			
Philadelphia	5.45	5.60	....	....	....	35.50‡	38.00‡			
Pittsburgh	5.20/5.30	5.20/5.30	....	....	.10	32.50	34.00			
St. Louis	5.58	4.94e	4.94e	....	....	45.00aa	50.00aa			
San Francisco	6.30u	5.75d	.....	.....	.15	40.00	42.50			
Seattle	4.05e	5.35ld	.....	.....	....	52.00mm	42.00mmx			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.46 — F.o.b. Mill, Monessen, Penn., $2.46

A.P.M.* Joliet, Illinois, Donora, Penn., $1.75 — F.o.b. Mill, Monessen, Penn., $1.75

A.P.M.* Joliet, Illinois, Donora, Penn., $2.58 — F.o.b. Mill, Monessen, Penn., $2.58

* At Prudential Mill.

‡ Delivered. *b* 1–5 tons, add 35¢. Less than 1 ton, add 50¢. *c* 20 tons or over base. *e* F.o.b. plant. *f* Includes delivery in free delivery zone. *g* 10,000 to 39,999 lbs. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial and Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade; new billet. *m* Per sq. yd. *n* 5–10 tons. *o* 5 to 15 tons base. *p* Del. of 5000 sq. yd. or less. *q* Std. ribbed. 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size-extra—1 in., 1¼ in., 1½ in., 10¢; 2 in., 4 in., 15¢; ⅝ in., 25¢, ⅜ in., 50¢, ½ in. 80¢, ⅝ in. $1.90. *v* 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $0.0063 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales tax. *hh* 10,000–19,999 lbs. *ii* Rolled at Geneva mill. 400–39999 lbs. *kk* ¼" ribbed. *ll* 5 to 8 tons. *mm* 2% off for cash. *nn* 10 tons or over.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	¢ C. I. PIPE Per net ton f.o.b. 6 in. to 24 in. a	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. 8 in.	std. 12 in. 12 in.	24 in. 24 in.	36 in. 36 in.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$89.50	$0.43	$0.67	$3.39	$7.00	$114.00	$140.00	$0.45	$2.00
Baltimore	93.86	.483	9315	3.87	10.35	168.60	260.40	.85	2.35
Birmingham	82.50	.40	.72	2.84	....	210.00‡	375.00‡	.90	2.50
Boston	102.40	415urx	8647urx	3.78urx	10.50urx	181.65x	280.98x	1.452mx	3.601mx
Chicago	96.49	.60	1.15	4.50	13.25	150.00‡	270.00‡	.80	2.80
Cincinnati	94.90	.476	.918	3.87	10.25	148.80‡	230.70‡	.70m	2.60m
Cleveland	97.13	.406x	.783x	3.33x	9.1225x	147.00	229.00	.72m	2.75m
Dallas	99.28	.436	.822	3.234	9.17	....	....	.49	1.60
Denver	104.36	.41dd	.71dd	2.98dd	....	....	....	.74dd	2.56dd
Detroit	92.13	.68	1.21	4.86	13.12	230.00m	350.00m	.75	3.00
Kansas City	98.41	.43m	.76m	3.00	....	215.00	....	.65	2.25
Los Angeles	111.06	.80dd	.967l	4.871l	12.145l	242.30	342.60	.79	2.25f
Minneapolis	94.86/103.67	.62mo	1.12mo	4.55mo	....	....	....	1.29h	3.67h
Montreal	90.00	.77z	1.33z	4.47z	7.23z	....	....	72.00/dzz	218.00/hzz
New Orleans	92.48	.463	.82	4.41	8.85*	235.00hh	412.00hh	.65	2.29
New York	97.80/102.50	.58	1.10	4.40	11.99	....	....	1.00	2.50
Philadelphia	99.47	.60	1.10	4.33	12.56	270.00‡	330.00‡	1.356	3.60h
Pittsburgh	97.70	.50m	.70m	2.70m	9.625m	147.50	230.00	1.05k	2.56k
St. Louis	94.27	.51	.92	3.80	9.00	....	....	1.15ni	2.45hl
San Francisco	111.06	.56d	1.08d	4.68d	11.70d	195.00ff	325.00ff	.60	2.85
Seattle	112.95	.51b	.91b	....	....	150.00r	....	.80ee	2.40ee

‡ Delivered. *a* B. & S. class B and heavier, CL, Burlington, N. J. (base $87.50). Based on existing freight rates, subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $5 per ton additional, 30 in. and larger usually $1 per ton less. *b* Extra strength ASTM C 200-41T. *c* 4 in., $90. *d* $8.86/A. *e* 30 in. *g* Colvert pipe. Reinforced, ASTM C76-41. *h* Reinforced. ASTM C75-41. *i* Reinforced. ASTM C76-37. *j* Centrispun. *k* Per 100 ft. *l* f.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum). *r* Less than 5 tons, per price per ft. *t* Within switching limits. *u* ASTM C13-40. *x* F.o.b. cars. *z* 2 ft. lengths. *dd* 3 ft. lengths. *z* C.S.A.A 60-1941 specifications used. *aa* No standard specification in Can. *bb* Freight allowed to destination in city. *cc* Truck loads, f.o.b. plant, Newton. *dd* LCL, delivered f.o.b. truck. *ee* 1% off for cash. * Not stocked, only made to order. *ff* 21" *gg* Prices are published on Birmingham and Burlington bases where no published increases have been made yet.

*WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅛ in., 5¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. and 1¼ in. black, + 10.5, galv. + 33.0; 1½ in. black, 4.5, galv. + 29.5; 2 in. black, 4 galv. + 26.0. *Lap Weld* — 2½ in. to 3½ in. black + 11, galv. + 32.5; 4½ in. to 8 in. black + 8, galv. + 28.0. Freight rates to destination to be added to name delivered price.

(Continued on page 87)

*WROUGHT STEEL PIPE (Full standard weight) Mill	2½ & 3 in. Butt Weld Black %	2½ & 3 in. Butt Weld Galv. %	3½ to 6 in. Lap Weld Black %	3½ to 6 in. Lap Weld Galv. %	7 to 12 in. Lap Weld Black %	7 to 12 in. Lap Weld Galv. %
Lorain, Ohio	48.0	33.0	43.0a	24.5a	24.5a	5.5a
Aliquippa, Pa.	48.0	30.0	40.0	21.5	23.5e	2.5eb
Sparrows Pt., Md.	46.0	29.0	40.0	21.5	21.5	2.5ab
Benwood, W. Va.	48.0	30.0	42.0c	23.5e	24.5a	5.5ab
Youngstown, Ohio	48.0	30.0	43.0a	24.5a	24.5a	5.5eb
Wheatland, Pa.	48.0	30.0	42.0eb	23.5eb	23.5eb	4.5eb
Ellwood City, Pa.	48.06	30.06	42.06	23.06	23.06	4.06
Fontana, Calif.	37.06	19.06	31.06b	12.5ab	12.5ab	b Continuous
Etna, Pa.	‡ Threaded and coupled.					
Bessemer, Ala.	a 3½ to 4 in.					

A Note to Cross-Country Contractors

Always at Your Elbow—

Twin Disc Parts . . . Twin Disc Service

No matter where you work your equipment, you'll find parts and factory-trained service nearby—when you specify *Twin Disc* Clutches and Power Take-offs. Twin Disc maintains 5 strategically located Factory Branches, plus complete parts stocks at 46 other locations. Moreover, easy-to-service Twin Disc products are standard on so many engines, so many types of equipment, that any maintenance man is well acquainted with them. Take advantage of this insurance against down-time and be sure your equipment is Twin Disc-equipped.

Clutches & Hydraulic Drives

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois

BRANCHES: CLEVELAND • DALLAS • DETROIT • LOS ANGELES • NEWARK • NEW ORLEANS • SEATTLE • TULSA

INSTALLATION COSTS LOWERED!

RIC-WIL "PRE-BUILT" INSULATED PIPING
IS ACCURATE IN EVERY DETAIL

Careful pre-installation planning, plus accurate prefabrication of Ric-wiL units and accessories, greatly reduce installation time on either underground or overhead insulated piping. These savings on installation costs are later increased by the long high-efficiency and trouble-free life of Ric-wiL Insulated Piping Systems.

Careful attention is given to each manufacturing detail of every Ric-wiL product by skilled craftsmen working under ideal factory conditions.

Engineers and contractors the world over recognize the "built-in" accuracy and lasting quality of Ric-wiL products, each designed and built to do the most efficient job to fit any specific requirement.

Since 1910, thousands of Ric-wiL installations have produced maximum efficiency and protection on millions of feet of insulated piping systems. Constant product research and development, plus the company piping engineering service, make Ric-wiL truly "The Greatest Name in Insulated Piping".

40th YEAR DEPENDABLE INSULATED PIPING SYSTEMS 1910 1950

For full technical information on Ric-wiL Insulated Piping Systems, call or write the Ric-wiL office nearest you or Department 10-BA in Cleveland, Ohio.

RIC-WIL
INSULATED PIPING SYSTEMS

OVERHEAD — THE RIC-WIL COMPANY · CLEVELAND, O. — UNDERGROUND

FOR FORTY YEARS THE GREATEST NAME IN INSULATED PIPING SYSTEMS

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimension, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 80 ft.
(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 R/A	6x12 R/A	12x12 R/A
Atlanta	† **$90.00**	**$94.00**	**$78.00**	**$80.00**	**$84.00**	**$88.00**	**$88.00**	.....	.....
Baltimore	* **110.00**	**110.00**	**105.00**	**110.00**	**110.00**	**110.00**	**110.00**	.....	.....
	119.00g	*119.00g*	*119.00g*	*119.00g*	*119.00g*	*119.00g*	*119.00g*	*$119.00*	*$119.00*
Birmingham	† **83.00**	**85.00**	**65.00**	**80.00**	**85.00**	**85.00**	**85.00**	.....	.....
	80.00	*80.00*	*75.00*	*77.50*	*77.50*	*80.00*	*81.00*	*81.00*	*81.00*
Boston	* **91.00**	**91.96**	**96.00**	**96.00**	**96.00**	**100.00**	.....	.....	.....
	‡ 118.00	*100.00*	*115.00*	*120.00*	*120.00*	*120.00*	*120.00*	*120.00*	*120.00*
Chicago	**115.00	**120.00**	**106.00**	**117.00**	**117.00**	**119.00**	**120.00**	.....	.....
	114.00	*118.00*	*124.00*	*125.00*	*125.00*	*126.00*	*126.00*	*125.00*	*125.00*
Cincinnati	* **113.50**	**114.18**	**125.00**	**113.96**	**113.96**	**126.72**	**138.60**	.....	.....
	118.00	*116.00*	*142.00*	*142.00*	*142.00*	*146.00*	*146.00*	*187.00*	*187.00*
Cleveland	**110.00	**112.00**	**107.00**	**107.00**	**109.00**	**109.00**	*107.00*	*107.00*	*107.00*
Dallas	‡† **78.00**	**80.00**	**69.00**	**58.00**	**59.00**	**59.00**	**98.00**	.....	.....
Denver	* *Not in stock*		*184.00*	*184.00*	*184.00*	*186.00*	*182.00*	*148.00*	*146.00*
Detroit	‡ **120.00**	**124.00**	**110.00**	**120.00**	**124.00**	**124.00**	.....	.....	.....
	109.50	*110.00*	*110.00*	*110.50*	*109.50*	*108.25*	*108.00*	*125.00*	*125.00*
Kansas City	* **125.00**	**130.00**	**132.00**	**129.00**	**133.00**	**135.00**	.....	.....	.....
	119.00	*130.00*	*132.00*	*129.00*	*133.00*	*135.00*	*140.00*	*145.00*	*145.00*
Los Angeles	† *118.00*	*118.00*	*115.00*	*114.00*	*118.00*	*118.00*	*128.00*	*141.00*	*128.00*
Minneapolis	‡ *135.00*	*135.00*	*140.00*	*140.00*	*140.00*	*140.00*	*150.00*	*150.00*	*150.00*
Montreal	ab 75.00	**79.00**	**77.00**	**80.00**	**80.00**	**80.00**	.....	.....	.....
	100.00	*100.00*	*100.00*	*100.00*	*100.00*	*105.00*	.....	*165.00*	.....
New Orleans	† **80.00**	**83.00**	**79.00**	**80.00**	**83.00**	**85.00**	**100.00**	.....	.....
	† *76.00*	*78.00*	*80.00*	*80.00*	*80.00*	*77.50*	*77.00*	*70.00*	*70.00*
New York	**129.135**	**132.138**	**120.130**	**125.135**	**130.135**	**135.145**	**145/160**	.....	.....
			Range from $125.00 to $135.00				*135/145*	*135/145*	*135/145*
New York	**114.00	**116.00**	**90.00**	**112.00**	**114.00**	**115.00**	**125.00**	.....	.....
	122.00	*122.00*	*122.00*	*122.00*	*122.00*	*122.00*	*125.00*	*125.00*	*125.00*
Philadelphia			**Range from $117.00 to $127.00**				**117/127**	.....	.....
			Range from $130.00 to $140.00				*130/150*	*140/150*	*140/150*
Pittsburgh	†		**Range from $95.00 to $100.00**			**100/110**	.....	.....	.....
			Range from $100.00 to $110.00				*130/140*	*110/120*	*130/140*
St. Louis	fc **128.00**	**133.50**	**110.25**‡	**125.00**‡	**131.00**‡	**133.25**e	.....	.....	.....
			140.50e	*140.00e*	*140.00e*	*140.75e*	*146.00e*	*144.75*	*144.75*
San Francisco	*At 88.85*	*88.85*	*89.95*	*89.95*	*89.00*	*89.00*	*80.85*	*80.85*	*80.85*
Seattle	† *90.00g*	*90.00g*	*90.00g*	*90.00g*	*90.00g*	*90.00g*	*90.00g*	*90.00g*	*90.00g*

	LONG LEAF Y. P.		PLYWOOD
	Merchantable grade up to 20 ft.		Rail freight increment (See note for base price)
	2x12 R/A	12x12 R/A	¾"	¾"
Atlanta	.....	.....	$22.32	$27.24
Baltimore	**$150.00**	**$153.00**	*22.86*	*27.90*
Birmingham	**115.00**	**125.00**	*21.78*	*26.58*
Boston	**124.00**	**124.00**	*22.86*	*27.90*
Chicago	**160.00**	**160.00**	*18.72*	*22.80*
Cincinnati	.....	.....	*21.78*	*26.58*
Cleveland	.....	.....	*22.20*	*27.12*
Dallas	**104.00**	**98.00**	*18.72*	*22.80*
Denver	.....	.....	*13.92*	*16.98*
Detroit	.....	.....	*21.78*	*26.58*
Kansas City	.....	.....	*16.56*	*20.16*
Los Angeles	.....	.....	*13.38ab*	*16.26ab*
Minneapolis	.....	.....	*16.56*	*20.16*
Montreal	.....	.....	.....	.....
New Orleans	**135.00**	**135.00**	*18.72*	*22.80*
New York	**210.240**f	**210.240**f	*22.86*	*27.90*
New York	.....	.....	.....	.....
Philadelphia	**190.200**	**190.200**	*22.86*	*27.90*
Pittsburgh	.....	.....	.....	.....
St. Louis	**110.120**	**130.140**	*22.56*	*27.48*
San Francisco	.....	.....	*18.72*	*22.80*
Seattle	.....	.....	*10.08a*	*12.30a*

‡ F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. † Deliv. to contr. CL. a. Retail, LCL, at yard. c Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* a Spruce. b Tax exempt. c 5M lots. d 8-12 ft. lengths. e 8-16 ft. lengths. f 18 ft. or under. g No. 1 common. h 8 ft. lengths. i No. 3 common. k 50,000 lb. minimum. l Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail $12.00 by truck to yard with surfaced stock $2.00 to $3.00 less.

PLYWOOD: Special concrete form grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¾", $200.00; on ¼", $225.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. a Lower rate by water shipment. b 50,000 lb. minimum.

* Freight rate increase of 6¢ per cwt., not included in these figures.

GLASS, EXPLOSIVES, CHEMICALS

WINDOW GLASS

Discounts from jobbers list, Feb. 1, 1950:
Single or Double Thickness

	A quality	B quality
Atlanta	76%e	76%e
Baltimore	80-10%	82-10%
Birmingham	83%	83%
Boston	83%	83%
Chicago	81%	81%
Cincinnati	81%	81%
Cleveland	81-10-10%	81-10-10-10%
Dallas	75%	75%
Denver	83-5%	83-5%
Detroit	81-10-10%	81-10-10%
Kansas City	83-10-10%	83-10-10%
Los Angeles	56%	61%f
Minneapolis	80-10%	80-10%
Montreal	40-5%be	40-10-5%be
New Orleans	83%	83%
New York	85%	85%
Philadelphia	80%	82%
Pittsburgh	82%	80
St. Louis	70-10%e	70-10%e
San Francisco	66%e	73%e
Seattle	52%e	58%e

Glass: a Jobbers list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. b Discount from list, Sept. 1950; sales tax included, but 6% tax exemption not allowable for. c Single thickness. e Discount from list of Jan. 10, 1946. f ss; ds—60%.

EXPLOSIVES

Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*

Atlanta	$0.2175
Baltimore	.2175
Birmingham	.1650
Boston	.2175
Chicago	.2175
Cincinnati	.2175
Cleveland	.2375
Dallas	.2250
Denver	.2225
Detroit	.2175
Kansas City	.2225
Los Angeles	.22
Minneapolis	.2225
Montreal	19.15¢i
New Orleans	.2225
New York	.37g
Philadelphia	.2175
Pittsburgh	.19
St. Louis	.2225
San Francisco	.2175
Seattle	.22

Price of 60% Ammonia Gelatin is $0.0125 per lb. lighter than 40%

Explosives: * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $5.00 per trip. i F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $20.90.

40% Ammonia Gelatin price ranges in other than urban areas, per lb.
(except Seismograph Grades)

	C. L. 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.165	$0.1975	$0.2175
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.17 – .1775	.2025–.21	.2225–.23
Rocky Mtn. States	.17 – .1825	.2025–.21	.2225–.235
Pacific N. W. States	.1675–.18	.20 – .2125	.22 – .2325
Pacific S. W. States	.165 – .1725	.1975–.20	.2175–.2225

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	50 to 50-ft.	$0.43	.....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.46	.....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.50	.....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	.....	.79
13-in.—2-ft. from butt	5-in.	90 to 100-ft.	.....	.80
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.50	.87
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.54	.81
14-in.—2-ft. from butt	5-in.	80 to 85-ft.	.67	.82
14-in.—2-ft. from butt	5-in.	85 to 89-ft.	.....	.83
14-in.—2-ft. from butt	5-in.	90 to 100-ft.	.....	.87

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak c	.....	.....	.....	.....
	Pine c	.....	.....	.....	.....
New York	S. L. Sap Pine	$1.65	$3.00	$2.25	$3.40
	Mixed Oak	2.00	3.20	2.50	3.70
Birmingham	Hardwood	1.00	1.60i	.....	2.25i
Chicago	Red Oak	2.75	2.80i	.....	3.65 3.70i
Los Angeles	Douglas Fir	.....	.....	.....	.....
	Redwood	.....	.....	.....	.....
Philadelphia	Red Oak	2.15/2.33	3.10/3.13a	3.00/3.10	4.15/4.25a
St. Louis	White Oak	2.70	.....	3.45	.....
	Red Oak	2.65	3.35a	3.40	4.30a
	Sap Pine or Cypress	3.20i	.....	4.05	.....
San Francisco	Douglas Fir	1.28e	2.24ef	1.70ef	3.05eof
Montreal	Birch or Maple	h	h	h	h

Tr.—Treated; Untr.—Untreated. a Creosoted. b 7" x 9" x 8'. e Empty cell. c Green. f F.o.b. cars. h No constant price available. i Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.087½
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, f.o.b. works, ton	23.50–25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	1.90
Soda ash, 58%, in paper bags, per 100 lb. dense	1.45
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.62½
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.65

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED			BRICK		LIME		
	Per M. lots of 2,000 pieces or over,			Per M. lots of 2,000 pieces or over,			Per M. in quantity		Per ton, In paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	.....	.....	.....	.....	.....	.....	$26.75	$26.75	$19.00	$17.50	$17.50
Baltimore	$175.00	$185.00	$325.00	$380.00	.....	.....	36.00*k*	41.00*k*	26.00	20.00	.....
Birmingham	97.50	104.00	195.00	231.00	.....	.....	20.00*ff*	22.50*gg*	24.74	16.30	.....
Boston	149.00†	161.50†	298.00†	338.00†	.....	.....	32.00*k*	35.00*k*	32.30†	27.90†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	21.00	23.00	30.80	24.50	.....
Cincinnati	170.60*j*	180.60*j*	330.00*ddd*	278.60*j*	$355.00	$405.00	34.50*j*	44.25*j*	26.00*j*	24.25*j*	24.25
Cleveland	118.00*ee*	126.00*ee*	236.00*ee*	.....	.....	.....	30.00	30.00	25.50	23.50	29.90*ee*
Dallas	.....	110.00	.....	.....	.....	.....	18.75	33.25	31.90	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	32.00	38.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	117.08	124.88	234.15	.....	$290.68	$332.20	33.50*kk*	32.00*kk*	30.00	30.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	25.00*o*	37.50*o*	28.50*p*	22.50*p*	25.00*p*
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	20.00‡	.....	36.00	36.00	32.00
Minneapolis	165.00*p*	185.00*p*	373.00*p*	185.00*ccp*	.....	.....	31.25*cc p*	35.25	37.00*bbe*	26.00*bbe*	37.00*bbde*
Montreal	143.00*tq*	157.00*tq*	292.00*tq*	.....	.....	.....	26.50	36.50	22.00*u*	.....	.....
New Orleans	160.00	160.00	300.00	.....	.....	.....	29.00	.....	38.00	26.00	37.50
New York	121.60*b*	129.70*b*	178.30*kh*	194.60*hn*	.....	.....	35.00	.....	36.00	28.00	.....
Philadelphia	126.30	134.80	252.60	302.74	361.35	455.74	29.00	32.00	33.00	21.50	26.50
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	30.00	35.00*y*	24.00	22.00	2.97*m*
St. Louis	120.00	135.00	180.00	252.00	339.00	.....	34.50*kl*	32.50*kl*	.85*nnp*	.60*nnpe*	1.00*nnpee*
San Francisco	132.00*kl*	148.50*kl*	198.00*kkla*	148.50*kla*	.....	.....	33.00	.....	25.30	25.30	2.49*m*
Seattle	150.00*ee*	160.00*e*	.....	160.00*eew*	.....	.....	32.00*ss*	39.00*ss*	37.50*shh*	37.50*shh*	3.90*mhh*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 12 in.-3 cell. *d* Pulverized hot. *e* 5% 10th following month. *g* 5½ x 8 x 12. *k* F.o.b. trucks, job site N.Y.C. *l* F.o.b. warehouse only. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *o* F.o.b. Buffalo. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. plant.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD	WHITE LEAD	READY-MIXED PAINT			ROOFING SUPPLIES Carload lots f.o.b. factory				
	Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	Per 100 lb. in 100 lb. cases in oil *w*	Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$19.00	$29.725	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	18.75	29.35	2.55	4.10	3.10	3.40	4.00	4.00	.42	36.90
Birmingham	19.00	29.725	5.90	3.40	.....	2.80	2.75	2.75	.....	40.50*ee*
Boston	18.75	29.35	.....	.....	.....	2.81*h*	2.53*tq*	2.81*tq*	.38	42.00
Chicago	18.75	29.35	.....	.....	.....	2.57*ja*	2.63*ja*	2.63*ja*	38.00*bbe*	40.00*ee*
Cincinnati	18.75	29.35	2.90	2.90	.....	2.28‡	2.28*ja*	.....	.30*y*‡	.....
Cleveland	18.75	29.35	2.50*qq*	2.75*qq*	2.35	2.35	2.40*a*	2.40*a*	.30*y*	33.00
Dallas	19.00	30.10	4.05	.....	.....	3.50*q*	3.75*a*	4.35*a*	.36	46.00
Denver	19.25	29.85	2.82	4.50	2.63	3.20*a*	2.57*a*	2.57*a*	.41*ff*	40.00
Detroit	18.75	29.35	2.35	3.30	2.50	2.35	2.40*f*	2.40	.51	37.00
Kansas City	18.75	29.47	.....	2.46	.....	2.09	3.63	3.63	.283	43.20
Los Angeles	18.75	29.60	3.05	4.00	3.75	2.48	1.68*e*	*l*	.37	*l*
Minneapolis	18.75	29.47 28.55	.....	.....	.....	2.35*ddd*	2.40*ddd*	2.40*ddd*	.336*ddd*	36.00*e*
Montreal	.....	29.70	3.75*t*	4.20*t*	4.62*t*	3.50*t*	3.25*ff*	3.25*ff*	1.01*t*	2.90*kt*
New York	18.75	29.35	3.45*q*	.....	.....	2.35	2.40*a*	2.40*a*	.34*z*	36.00
Philadelphia	18.75	29.35	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	18.75	29.35	2.20	2.25	2.00	2.85	2.85*a*	2.85*a*	.37	40.00
St. Louis	18.75	29.35	.....	.....	.....	2.63	2.79*h*	2.79*h*	.36	41.00
San Francisco	18.75	29.60	1.80	2.75*n*	1.35	2.27	3.30*a*	.....	.38	.....
Seattle	18.75	29.85	2.51*m*	2.67*m*	.....	3.26*mee*	2.78*hmee*	.....	.59*mee*	48.75*jmc*

‡ Delivered. Note: Red lead in oil 20¢ higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* C. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-41. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *h* Per roll. 65 lb. *i* Net carload lot prices. Minneapolis and vicinity. *j* Asphalt patch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* May, 1941 price. *o* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* ASTM Spec. D266-41. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Contains *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory.

SKILLED AND COMMON WAGE RATES—PER HOUR

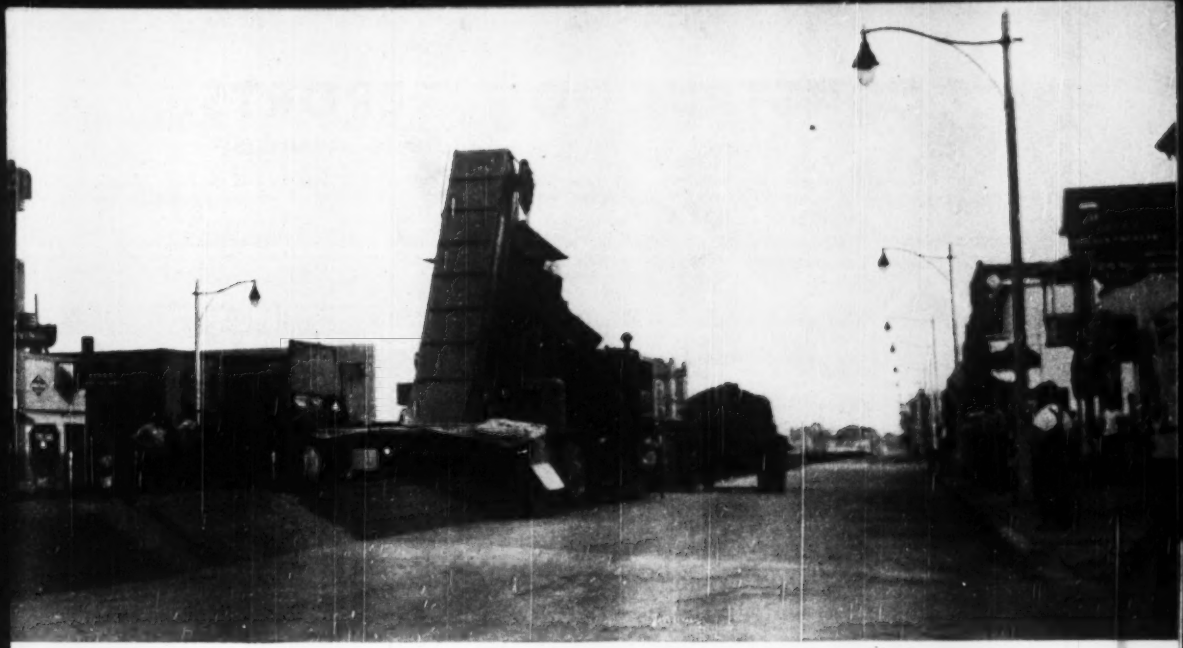
	Brick-layers	Car-penters	Struct. Iron Workers	Hoisting Engineers	Plas-terers	Electrical Workers	Steam-fitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.50	$1.85	$2.25	$2.125	$2.375	$2.25	$2.00	$1.00	$1.05
Baltimore	3.00	2.35	2.65	2.60 2.80	2.50	2.50	2.50	1.25	1.35
Birmingham	2.75	2.035	2.30	1.975	2.30	2.375	2.45	1.10	1.20
Boston	2.775	2.375	2.55	2.00	2.85	2.60	2.45	1.75	1.75
Chicago	2.625*d*	2.55	2.60	2.50	2.81*n*	2.71*n*	2.60	1.90*m*	1.90*m*
Cincinnati	2.70	2.25	2.425	1.675 2.675	2.80	2.55	2.55	1.65	1.65
Cleveland	2.70	2.70*a*	2.70	2.70	2.70	2.70	2.70	1.975	1.85
Dallas	2.50*f*	2.125	2.25	2.25	2.50*f*	2.375	2.375	1.075	1.275 1.50
Denver	3.00	2.35	2.20	2.35	3.00	2.50	2.40	1.50	1.50
Detroit	2.75	2.50*i*	2.70	2.70	2.80	2.75	2.625	1.80	1.80
Kansas City	2.65	2.20	2.35	2.425	2.80	2.475	2.575	1.625	1.625
Los Angeles	2.75	2.20	2.50	2.15	3.125	2.50	2.50	1.65	1.65
Minneapolis	2.40	2.12	2.275	2.02	2.50	2.41*n*	2.435	1.52	1.52
New Orleans	2.60	1.975	2.35	2.225	2.275	2.40	2.35	1.10	1.10
New York	3.343*r*	3.036*s*	3.343*s*	3.309*ar*	3.183*s*	3.250*gt*	1.90	1.90	1.90
Philadelphia	3.31*v*	2.525	2.800	2.50	3.075*k*	3.03 3.283*k*	2.825*k*	1.475	1.775
Pittsburgh	3.00	2.63	2.625	2.80	2.625	2.625	2.80	1.60	1.60
St. Louis	3.09*v*	2.968	2.50	2.55	2.75	2.675*v*	2.625	1.65	1.80 1.75
San Francisco	3.00*u*	2.375	2.50	2.19	3.00	2.625	2.80	1.55	1.55
Seattle	3.00	2.195	2.395	2.33	3.00	2.50	2.50	1.795	1.85
Montreal*	1.90	1.40	1.50	1.30	1.60	1.50	1.55	1.00	.85

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 2½% for electricians. * Cost of living bonus now included in basic wage. *i* Includes 5¢ per hr. tool replacement. † Plus $5.00 daily bonus. *k* $2.20 hours and housing + 5¢ vacation fund. *s* Incl. 2½% welfare. *t* Incl. 2¢ hr. welfare. *v* Incl. 2½¢ hr. welfare fund. *ar* Incl. 4% vacation fund. *m* Incl. 5¢ hr. welfare stn. fund. *n* Incl. 6¢ hr. welfare fund. *e* Incl. 3% welfare fund. *p* Incl. 3% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20¢ pension fund. *u* Incl. 1% welfare fund. *z* Incl. 3% welfare fund and 3% vacation fund. *gt* Incl. 3% pension fund.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Aug. '50	Sept. '50
Common Wages—Building (8 hr. day)	av. per hr.	.53	.53
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.69	.69
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	1.88	1.88
Bricklayers (8 hr. day)	av. per hr.	1.50	1.50
Struct. Iron Workers (8 hr. day)	av. per hr.	1.50	1.50
Struct. Steel Shapes 3"-15" x 12 meters	per ton	1,008.30	1,008.30
Reinf. Steel, Corr. Rods			
¼" x 11 meters	per ton	1,148.30	1,148.30
⅜" x 11 meters	per ton	1,138.30	1,138.30
½" x 11 meters	per ton	1,128.30	1,128.30
⅝" x 11 meters	per ton	1,108.30	1,108.30
¾" x 11 meters	per ton	1,118.30	1,118.30
1" x 11 meters	per ton	1,118.30	1,118.30
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	36.00	36.00
Rose Gravel	per tr. load	34.00	34.00
Cement, Std. Port. (Toltica)	per ton	125.00	125.00
Lumber			
Mex. Second Fir (Unsanded)	per M ft.	650.00	650.00
1st Class Pine	per M ft.	950.00	950.00
2nd Class Pine	per M ft.	850.00	850.00

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers) $2.565. **ENR Common Average:** $1.568.



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WIDE economies
AND
HANDSOME durable roads

• For Main Street or highway, asphalt resurfacing provides a rapid and economical means of restoring a smooth-riding, easy-to-maintain surface to any worn or broken pavement.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

Colo., Denver—B. A. 10/10—Bd. Water Comrs., City and County Bldg., Denver, imprvs. Moffat Filter Plant, W. 20 St. between Kipling Ave. and Daniels Rd., incl. revis.-cont. subsurface settling basin, $388,200. D. D. Gross, City and County Bldg., ch. engr. CD 9/15.

▲ Okla., Tulsa—B.A. 10/13—Bd. City, Comrs., City Hall, Contr. 10, Second Spavinaw Proj., incl. Upper Spavinaw Dam approx. 2,200 ft. long open spillway type with larger portion of mass concrete, remainder of dam will consist of short sect. of earth embankment at east end; short sect. of spillway with radial gates, concrete non-overflow sect. with intake structure, to be built across Spavinaw Creek, 3 mi. upstream from head of present Spavinaw Lake, and approx. 8 mi. southwest of town of Jay. Plans deposit $40. $2,500,000. W. R. Holway & Assoc., 302 E. 18 St., Zone 14, consult. engrs. CD 11/29/45.

Calif., San Luis Obispo—B.A. 10/16—City, City Hall, water filtration plant, Approx. $28,000. Plans deposit $25. G. H. Hamilin, city engr. Harry N. Jenks, 63 Crescent Dr., Palo Alto, engr. CD 9/4/47.

Ill., Beecher City—B.A. 10/16—Village, Village Hall, WW sys. Plans deposit $5. Caldwell-Rhoads Co., West College at Diamond Sts., Jacksonville, engr.

Tex., Daingerfield—B. A. 10/16—City, water lines, $30,000. Plans deposit $25. Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, engr. CD 8/23, under LB.

Tex., Breckenridge—B.A. 10/17—City, M. A. Naylor, mayor, 68,000 ft. 12 and 16 in. pipe, pump station, $125,000. Plans deposit $25. Freese & Nichols, 807 Dan Gher Bldg., Fort Worth, engrs.

▲ Que., Quebec City—B.A. 10/17—F. X. Chouinard, city clk., supply, trenching, filling, laying, jointing approx. 7 mi. 24 to 48 in. main water supply pipe, together with specials, valves, other appurtenant works, etc. Approx. $3,410,000. Plans deposit $50. Geo. Demers, c/o owner, engr. CD 8/23.

LOW BIDDERS

Minn., St. Louis Park—Village, J. Justad, clk., Sept. 18, furnish, install about 15,699 lin. ft. water mains, from Lametti & Lametti, 615 Drake St., St. Paul, $63,090. CD 9/13.

▲ Tex., Dallas—City, City Hall, Main and Harwood Sts., Sept. 19, 10 mi. 54- to 60-in. concrete water main from New Elm Fork Plant near Carrollton to Bachman Lake Plant near city limits, from Cole Williams, Mandeville, La., $2,137,245. Est. $2,750,000. CD 9/6.

SEWERS, WASTE DISPOSAL

BIDS ASKED

N. Y., New York—B.A. 10/10—Bd. Water Supply, 120 Wall St., Contr. 425, furnishing, del., installing, testing heating and ventilating equip. for sewage treatment plant and pumping stations of Port Jervis Sewerage Sys. in City of Port Jervis. Plans deposit $5. No bids received 8/29. CD 8/11.

▲ Pa., Phila.—B.A. 10/13—Dept. P. Wks., City Hall Annex, storm relief sewer, G St., $1,600,000. No bids received 9/12. A. Zane Hoffman, c/o owner, ch. engr. CD 8/31.

Calif., South San Francisco and San Bruno—B.A. 10/16—Cities of South San Francisco and San Bruno, City Hall, joint sewage treatment plant, $718,000. Plans deposit $25. Chas. E. Randlett, City Hall, South San Francisco, engr. B. Benas, 4545 Lincoln Way, San Francisco, engr. CD 6/14/49.

Calif., Redwood City—B.A. 10/17—San Mateo Co., Courthouse, sanitary sewer lines in Woodside Heights and Adjacent Terrace. Approx. $50,000. Plans deposit $10. Basil W. Waters, Jr., 137 Ave., San Mateo, engrs.

▲ N. J., Camden—City, City Hall, Sept. 20, Delaware River Intercepting Sewer (North Section), from C. Salvatore & Son and Joseph Miele, 344 Washington St., East Orange, $1,185,000. CD 8/29.

▲ Pa., Phila.—Dpt. P. Wks., City Hall Annex, Sept. 18, storm relief sewer, Wingohocking St. from Joseph Lombardi & Sons, 1311 S. Broad St., $1,270,499. CD 9/13.

Ill., Rock Falls—City, new sanitary sewers, to W. L. Hall, Decatur, $335,191. Awarded 9/14. CD 8/25, under LB.

Ore., Portland—City, City Hall, 20 mi. sewerage sys. in Berths, Dist. to Empire Constr. Co., 4906 S. E. 39 St., $539,466. Bids 8/23, received 9/2. CD 8/29, under LB.

LOW BIDDERS

Calif., West Sacramento—West Sacramento Sanitary Dist., Jefferson Blvd., Sept. 15, sewage treatment plant, from A. L. Miller, 1716 P St., Sacramento, $136,050. CD 11/15/49.

Ont., Richmond Hill—Village, R. Lynett, clk., Richmond Hill, 1 mi. sanitary sewers on Yonge St. and house connections, from Dileo & Co., 239 Bellwoods Ave., Toronto, $50,862. CD 8/30.

CONTRACTS AWARDED

Tex., Fort Worth—City, City Hall, Aug. 31, sewage treatment plant imprvs. Contr. 2-B, to Infilco, Inc., 325 W. 25 Pl., Chicago, Ill., $35,200***Contr. 2-C to Pacific Flush Tank Co., 4241 Ravenwood St., Chicago, Ill. $33,530. Freese & Nichols, 407 Dancigher Bldg., engrs.

BRIDGES

BIDS ASKED

Michigan — B.A. 10/10 — Huron-Clinton Metropolitan Auth., 1750 Guardian Bldg., Detroit, Zone 26, steel deck girder, concrete, steel South Bridge over Clinton River cut off canal. Contr. 554-G, Macomb Co. Plans deposit $5 no refund. George W. McCordic, 1750 Guardian Bldg., Detroit, engr.

LOW BIDDERS

▲ La., Melville—Texas & Pacific R. R. Co., R. J. Gammie, ch. engr., Texas & Pacific Bldg., Dallas, Tex., Sept. 19, timber pipe trestle bridge over Atchafalaya River, from Massman Constr. Co., 20 W. 9 St., Kansas City, Mo., and Kansas City Bridge Co., 215 Pershing Rd., Kansas City, Mo., Est. $1,750,000. CD 9/5.

New Jersey—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Sept. 19, constr. substructure and superstructures of Bergen Turnpike Underpass and the Route 6 overpass, Ridgefield Park, Bergen Co., from Union Bldg. & Constr. Corp., 631 Main Ave., Passaic, $464,860. CD 9/5.

New York—Dpt. P. Wks., Albany, Sept. 20, 3-span, 243 ft. I-beam bridge to carry South St. in village of Addison over Tuscarora Creek, inc. 0.1 mi. c. conc. pavement and 0.01 mi. misc. work, Steuben Co., from Thomas P. Spagnoletti, 14 Denton Rd., Binghamton, $184,318. Est. $206,000. CD 8/31, under Streets and Roads.

New York—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Sept. 20, reconstruct roadway on movable span Roosevelt Avenue Bridge over Flushing River, Queens Boro, from Edgecliff Contg. Corp., Lafayette St. and Zerega Ave., New York, $168,900. CD 9/14.

Virginia—State Hy. Dpt., Richmond, Sept. 20, 192 ft. bridge over Linville Creek with approach road, west of Broadway, Route 259, Rockingham Co., from Echells Bros., Inc., Staunton, $93,875; 4 bridges between Appalachia and Stonega on Route 78 and sidewalk on U. S. 23 in Appalachia, Wise Co., from Robertson-Henry Co. Inc., Huntington, W. Va., $255,085. CD 9/1.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only): For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates, shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

* Extra or Supplementary

▲ Project of $1,000,000 or over.

B.A. Bids Asked

ENR Engineering News-Record

CD Engineering News-Record Construction Daily

CONTRACTS AWARDED

Md., Baltimore—Penn R.R. Co., 30 St. Station, Phila., Pa., Mulberry St. R.R. Bridge, to A. S. Wikstrom, Skaneateles, N. Y., $500,000.

STREETS AND ROADS

LOW BIDDERS

Iowa—State Hy. Comn., Ames, rejected bids Aug. 1, soil aggregate surf. 22.651 mi., Clay Co., L.B. $77,752. CD 7/21.

Maryland—State Rds. Comn., Baltimore, Zone 2, Sept. 19, crusher run sub-base, penetration macad. base, b. conc. base, surf. course, crusher run base, penetration macad. surf. course, 3.527 mi. divided hy. along relocation U. S. Rte. 240, Washington National Pike, Contr. F 425-13-615 and M 383-4-315, Frederick and Montgomery Counties, from Dutcher Constr. Corp., Queenstown, $924,511. CD 8/30.

Mich., Clio—City, Mayor Claud Babcock, rejected bids Aug. 30, street surf., Center St., Sects. 1 and 2, West Eng. Co., 1665 N. Chevrolet Ave., Flint, engr. CD 8/14.

Minnesota—State Hy. Dpt., St. Paul, Sept. 15, grading, bridge 10.5 mi. between Clarkfield and South County Line, Yellow Medicine Co., from J. S. Pukrop, Ivanhoe, $90,779. CD 9/1.

Minnesota—State Hy. Dpt., St. Paul, received no bids, Sept. 15, bit. surf, 0.3 mi. in Buhl, St. Louis Co. CD 9/1.

Mo., Kansas City—City, c/o Reed McKinley, dir. P. Wks., City Hall, Zone 6, Aug. 22, grading, repaving Wornall Rd. from 77 to 85 Sts., from Storms-Frei Constr. Co., 6601 E. 37 St., Zone 3, $159,835.

New Jersey—State Hy. Dpt., Trenton, Sept. 19, repaving 0.205 mi. Northbound Roadway on Rte. 25, Sect. 17C, between E. Grand and Anna Sts., Elizabeth, Union Co., from New Jersey Asphalt & Paving Co., Howell St., Jersey City, $51,589; widn. resurf. 1.107 mi. Rte. 35, Sect. 5A, from Navesink River to Harvard St., Middletown Twp., Monmouth Co., from Wingate Constr. Co., 601 W. Elizabeth St., Linden, $129,807. CD 9/7.

▲ New York—Dpt. P. Wks., Albany, Sept. 20, 1.05 mi. variable width c. conc. pavement on Niagara Thruway in city of Buffalo, exten. northwesterly along the proposed Perry Blvd. from connection with Court St. at Georgia St. to Porter Ave., incl. 0.86 mi. 9 in. c. conc.; 0.17 mi. b. conc.; 0.07 mi. misc. work, Erie Co., from Main Constr. Corp., 869 Ellicott Rd., Depew, $443,940, est. $473,000***construct 11.05 mi. Route 52 with 24 ft. wide c. con. pavement in Village of Ellenville, Ulster Co., at its intersection with White St. and continuing northwesterly along Route 52 to its intersection with Pubb Rd. in village of Woodbourne, Sullivan Co., incl. 0.03 mi. b. conc. pavement, Ulster and Sullivan Counties, from John Arborio, Jnr., W. Cedar St., Poughkeepsie, $885,156, est. $1,036,000***construct Capitree State Parkway from point south of Southern State Parkway to point south of Montauk Hy. in town of Islip 2.43 mi. incl. grading, drainage, structures, misc. work, Suffolk Co., from Davis Constr. Corp., Charlotte Ave., Hicksville, $305,585. Est. $374,000***cancelled bids to have been opened Sept. 20, imprv. Contr. RC 50-35 Smithville Village Broadway S.H. 1633, Amityville Village, S.H. 5300, Suffolk Co., will re-advertise. CD 8/31 and 9/13.

Ohio—State Hy. Dpt., T. J. Kauer, dir., Columbus, cancelled bids to have been opened Sept. 12, resurf. Type T-32, C. R. 22, Perry Co.

▲ Texas—State Hy. Comn., Austin, Sept. 19, flexible base, one course surf. tr. 8.958 mi. Hy. FM 593 and 1404, R 946-1-2 and R 1386-1-1, Upshur Co., from Dave McCullough, Pittsburg, $90,096, est. $80,000***flexible base, one course surf. tr. 10.581 mi. Hy. FM 1154, 1414, 1415, Proj. R 1300-1-1, Newton Co., from Menefee Bros. & Alford, Center, $135,955, est. $127,000***roadbed tr. 9.67 mi. Hy. FM 935 and 1048, Proj. R 752-4-1 and R 808-1-3, Falls Co., from Fred Hall & Son, Valley Mills, $70,709, est. $75,000***stabil. fdn. course and one course surf. tr. 6.488 mi. Hy. FM 1376, R 816-1-3, Dimmit Co., and one and surf. 7.928 mi. Hy. FM 1585, 819, 1491, RV 1488-1-7, Fannin and Hunt Counties, from R. W. McKinney, Nacagdoches, $113,608, est. $116,000 and $138,378, est. $115 respectively***stabil. fdn. course, one course surf. tr. 13.445 mi. Hy. FM 425, 1384 and 1385, R816-2-3, Denton Co., from Waldo Constr. Co., P. O. Box 5027, Dallas, Zone 1, $163,694, est. $165,000***flexible base, one course surf. tr. 9.497 mi. Hy. FM 1078, R 874-1-1, Hopkins Co., from Vendel Constr. Co., El Campo, $79,710, est. $73,000***stabil. course 7.44± mi. Hy. FM 1219, R 1372-1 and 2-1 and 1, McLennan and Falls Counties, from Hollard Page, P. O. Box 1161, Austin, Zone 6, $78,384, est. $76,000.

Flexible base, double asph. surf. tr. 6.508 mi. G. C. and S. P. R.R. F 20 (6) and FG 20 (7), Johnson Co., from C. Cage, 607 Travis Bldg., San Antonio, $490,009, est. $549,000***flexible base, one course surf. tr. 8.728 mi. Hy. FM 1440, Proj. R 1348-1-1;

Cottle Co., from Copper & Woodruff, 1203 Wilco Natl. Bank Bldg., Dallas, $97,263, est. $78,000*** flexible base, one course surf, tr. 8.122 mi. Hy. FM 1444 and 1445, R 1210-3-1, Milam Co., from H. R. Henderson & Co., P. O. Drawer, 313, Marshall, $100,533, est. $80,000***flexible base, one course surf, tr. 13.766 mi. Hy. FM 1177, Proj. R 236-3-4, Zavala Co., from Thomas & Ratliff, Rogers, $119,521, est. $120,000***grading, drainage structures 1.41 mi. Hy. FM 513, S. 1035 (2), Hunt Co., and flexible base, one course surf, tr. 7.9 mi. Hy. FM 1388 and 1390, R 1217-3-1 and R 197-11-2, Kaufman Co., from Joe Davidson, P. O. Box 439, Terrell, $170,990, est. $162,000 and $124,899, est. $115,000 respectively ***grading, small structures 8.614 mi. Hy. FM 365, S. 586 (1), Jefferson Co., and flexible base, one course surf, tr. 5.537 mi. Hy. FM 1247, R 1387-2-1, Cherokee Co., from R. C. Buckner, Jacksonville, $141,287, est. $125,000 and $66,669, est. $72,000 respectively***roadbed tr. and c. conc. 0.845 mi. Hy. U.S. 64, F 603 (13), Mclennan Co., from Worth Constr. Co., P. O. Box 531, Fort Worth, $233,045, est. $200,000***grading, bridge widn., culvert extens., flexible base, b. conc. pavement 1.268 mi. Hy. U.S. 69, F 134 (18), Polk Co., from Austin Road Co., P. O. Box 159, Dallas, Zone 1, $104,511, est. $114,000.

Grading, structures, grade separation, GRI & P. R.R. underpass 1.666 mi. Hy. U.S. 66, FGI 643 (11) and 643 (12), Potter Co., from Bell, Brader, Barker & Gilvin, Herring Hotel Bldg., Amarillo, $186,583, est. $155,000***flexible base, one course surf, tr. 5.912 mi. Hy. FM 860, R 458-3-2, Anderson Co., from R. N. Adams, P. O. Box 376, Kaufman, $63,710, est. $78,000***flexible base, asph. surf, tr. 10.835 mi. Hy. FM 140, 549 and SH 97, R 1431-2-1, Atascosa Co., from J. M. Dellinger, Inc., P. O. Box 4287, Corpus Christi, $110,221, est. $123,000*** drainage structures, roadbed tr. 8.844 mi. Hy. FM 159, Proj. 540-5-2, Brazos Co., from F. C. Herring, Kurten, $61,603, est. $72,000***flexible base, two course surf, tr. 22.441 mi. Hy. FM 378, 1517 and 1063, RV 1462-2-1, etc., Crosby Co., from J. R. Fanning, P. O. Box 1047, Lubbock, $196,847, est. $190,000*** soil asph. base, one course surf, tr. 6.654 mi. Hy. FM 442, Proj. R 838-2-1, Fort Bend Co., from Southern Contg. Co., 1901 Meadowbrook St., Austin, $123,215, est. $129,000***flexible base, single asph. surf, tr. 21.872 mi. Hy. FM 61, R 548-4-1, Howard Co., from Strain & Brown, Inc., P. O. Box 1057, San Angelo, $209,983, est. $225,000***flexible base, two course surf, tr. 5.951 mi. Hy. FM 864, Menard Co., and two course surf, tr. 14.008 mi. Hy. RM 33, R 558-12-2, Schleicher Co., from M. E. Ruby & W. L. Barnes, San Marcos, $59,748, est. $52,000, and $120,737, est. $118,000 respectively. CD 9/5 and 9/12.

Tex., Canadian—City, Sept. 11, asph. paving several streets, from W. R. Colville, Pampa, $93,373. CD 8/31.

Tex., Houston—City, City Hall, 900 Brazos St., Sept. 23, asph. paving Glenbrook Dr., from N. E. Kennedy & Sons, 1st. Natl. Bank Bldg., $51,116. W. A. Ortolani, 2208 Jean St., engr.

Tex., Marshall—City, Sept. 14, 1½ mi. asph. topping on 6 and 8 in. iron ore base, grading, drainage, concrete curbs and gutters, from H. R. Henderson Constr. Co., Marshall, $124,817. Est. $70,000. CD 9/6.

Virginia—State Hy. Dpt., Richmond, Sept. 20, widn. surf. 8.88 mi. U. S. 1, between South Hill and North Carolina line, Mecklenburg Co., from T. E. Brown, 357 Hillside Ave., Charlotte, N. C. $319,716***leveling, widn. 2.92 mi. U. S. 60, west of Cumberland Court House, Cumberland Co., from Wiley N. Jackson Co. Inc., R. F. D. 4, Roanoke, $179,719 ***hard surf. and bridge 7.97 mi. Secondary Route 626 between Midway Mills and Howardsville, Nelson Co., and crusher-run stone surf. 6.71 mi. Secondary Route 689, from Hayters to near Brumley Gap, Washington Co., from Adams & Tate Constr. Co., 2725 Roanoke Ave., Norwich, Roanoke, $122,815 and $72,951, respectively***hard surf. 4.66 mi. Secondary Route 600 between Three Square and Route 6, Goochland Co. from Virginia Eng. Co., Inc., Newport News, $59,508***hard surf. 7.38 mi. Secondary Route 734 between Aldie and Airmont, Loudoun Co., from Richard F. Kline, Frederick, Md., $94,610. CD 9/1.

CONTRACTS AWARDED

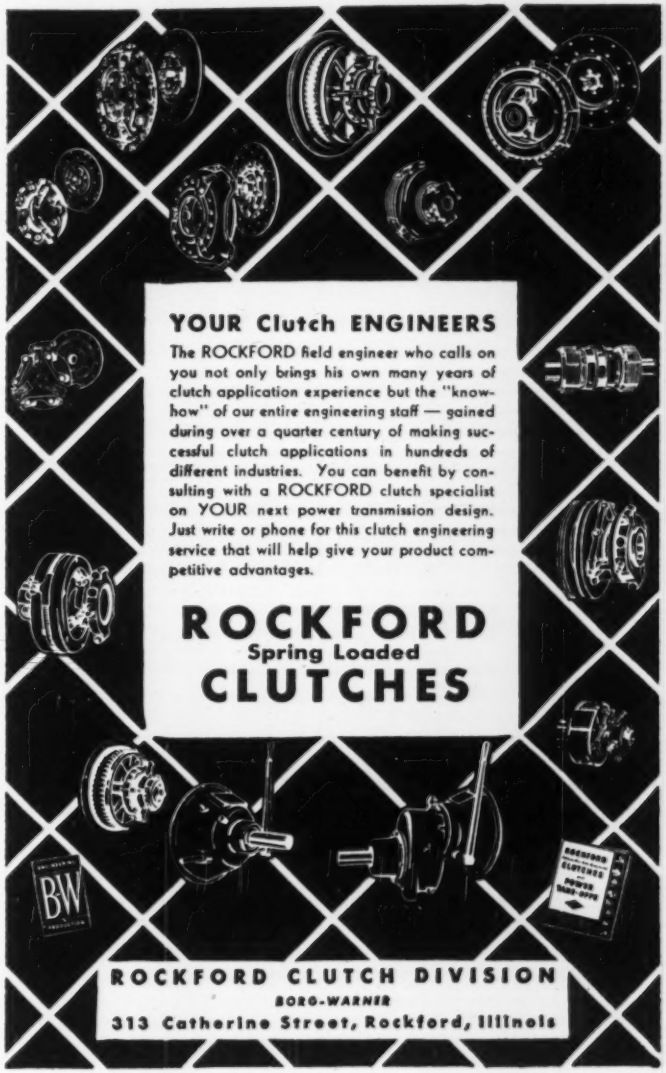
Arizona—State Hy. Dpt., Phoenix, base material, bit. 6 mi. Topok-Kingman Hy., Mohave Co., to Phoenix-Tempe Stone Co., W. Broadway, Phoenix, $262,153. Awarded 9/16.

Calif., Stockton—San Joaquin Co., Court House, streets, curbs, gutters, sidewalks and storm sewers in Calaveras Yacht & Country Club Estates Assessment Dist. 1, to A. Teichert & Son, Box 1123, Sacramento, $53,742. Awarded 9/18.

La., New Orleans—City, Proposal 15,152 c. conc. asph. paving Calliope St. from Loyola St. to S. Claiborne Ave., to Bon Bros. Constr. Co., 2400 Cypress St., $61,736. Bids 9/15.

Mich., Detroit—City, Dpt. P. Wks., Paving Group 50-26, 3914 ft. Glastonbury-Lyndon-Greenview, to Thomas S. Currie Co., 2531 Connor St., $67,410. CD 8/31.

▲ Minnesota—State Hy. Dpt., St. Paul, to De Ruyter Bros., Willmar, grading 9.1 mi. between 4 mi. south of Sleepy Eye and South County Line, Brown Co., $98,775; grading 10.9 mi. between west limits of Cosmos and Jct. T. H. 22, Meeker Co., $130,040; grading 4.3 mi. south of Godahl and 3.8 mi. west of Godahl, Watowan Co., $79,754***to W. D. Gierstsen Co., 900 Glenwood Ave., Minneapolis, grading, paving, bridge 0.6 mi. Hiawatha Ave. from 3 to E. 24 Sts., in Minneapolis, Hennepin Co., $498,661***to W. C. Griffis Co., Bagley, grading 6.7 mi. between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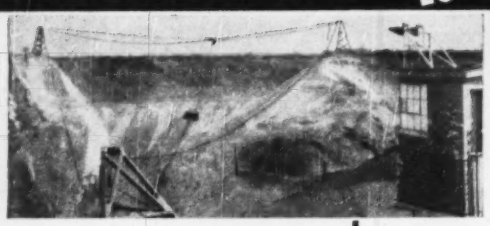

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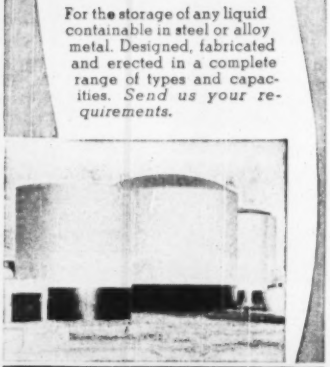

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Ogilvie and Mora Kanatec Co., $168,553***to Hallett Constr. Co., Crosby, c. conc. base, plant-mixed bit. surf. 1.1 mi., in Luverne, Rock Co., $116,384***to Okes Constr. Co., E. 1501 First National Bank Bldg., St. Paul, grading 0.3 mi. between ¼ mi. and ½ mi. north of Hastings, Washington Co., $69,876; c. conc. paving, conc. base, b. conc. surf. 1.6 mi. in Hastings, Dakota Co., $412,410. Grand total $1,574,453. Bids 9/15. CD 9/1.

▲ Ohio—State Hy. Dpt., T. J. Kauer, dir., Columbus. Zone 15, grading, draining, paving Type T-35 on B-117, S. R. 37, Licking Co., and grading, draining, paving, resurf. Type T-35, U. S. R. 436, Tuscarawas Co., to H. W. Holt & Son, 998 W. Mound St., Columbus, $151,917, est. $173,400 and $201,123 est. $204,000 respectively***grading, paving, Type T-32 on B-20, S. R. 152, Jefferson Co., to Gracco Roadway & Constr. Co., Inc., 5207 Eastern Ave., Cincinnati, $394,588, est. $507,600***grading, paving Type T-32 on B-20, S. R. 691, Athens Co., to W. H. Ringwald & Sons, Co., Inc., 42 E. Second St., Chillicothe, $144,750, est. $156,500***wid'n, resurf. Type T-35, U. S. R. 25, Auglaize Co., to Churchill Constr. Co., 1126 State St., Lima, $49,997, est. $48,650***resurf. Type T-35, S. R. 7, Belmont Co., to Tri-State Const. Corp., S. Broadway, Martins Ferry, $66,317, est. $64,330***wid'n., resurf. Type T-35, U. S. R. 22, Fairfield Co., to F. H. Brewer Co., P. O. Box 372, Lancaster, $147,475, est. $143,000 ***grading, draining, paving, Type T-35 on B-72, U. S. R. 33, Franklin Co., to Complete General Constr. Co., 1221 E. Fifth Ave., Columbus, $201,328, est. $242,800***resurf. Type T-35, U. S. R. 422, Cuyahoga Co., to The Horwitz Co., 913 Midland Bldg., Cleveland, $78,832, est. $86,825. Grand total $1,436,327. Bids 9/12.

EARTHWORK, WATERWAYS

BIDS ASKED

Mo., St. Louis—B.A. 10/10—City, Bd. P. Service, Frank J. McDevitt, pres., 304 City Hall, Zone 3, constr. 36,000 cu. yd. earth fill in earthen levee on Mississippi River at Chain of Rocks Water Works Pumping Stations, $20,000; 55,000 cu. yd. earth fill of earthen levee on Missouri River at Howard Bend Water Works Pumping Station, $25,000. Dpt. P. Utilities, Conway B. Brisco, dir. and Thomas J. Skinker, water comr., 311 City Hall, 12th and Market Sts., Zone 3, engr.

New York—B.A. 10/11—Henry A. Cohen, dir. Bureau Contracts & Accounts, Albany, replace gates Dam 4, replace lower gates Dam 5, Movable Dam 4, Scotia. Movable Dam 5, Rotterdam. Contr. No. M-98, Schenectady Co. $281,736. Plans deposit $10.

N. B., Saint John—B.A. 10/11—Acting Secy., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater repairs, Courteanay Bay. Approx. $60,000. Plans deposit $20. R. Blais, c/o owner, ch. engr.

† Wyoming—B.A. 10/11—Bureau Reclamation, Dpt. Interior, Riverton, earthwork, canal lining, structures, Wyoming Canal, Station 2560 plus 00 to Station 3304 plus 00 Badger lateral, Station 0 plus 00 to Station 59 plus 37, laterals W48.59 to W61.56 sub-laterals, Cottonwood drain and two bridges, Riverton Proj., 25 mi. north of Riverton, Spec. 3189, Michael W. Straus, cmr.

† South Carolina—B.A. about 10/12—U. S. Eng., Customhouse, P. O. Box 905, Charleston, maintenance dredging of Sampit River and Sampit River Cutoff, Branch Channel and upper Winyah Bay. CIVENG 38-082-51-2. CD 8/24.

† Washington—B.A. 10/17—Bureau Reclamation, Dpt. Interior, Ephrata, Wash., contr. earthwork and structures, Station 2044 plus 50 to Station 2840 plus 00, West Canal, Columbia Basin Proj. 6 to 17 miles south of Quincy, Spec. 3181. L. N. McClellan, ch. engr.

† Montana—B.A. 10/19—Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver, Colo., 12.78 ft. x 21.78 ft. fixed wheel gates for Canyon Ferry Dam, Missouri River Basin Proj., Spec. 3188. L. N. McClellan, Bldg. 1 A Denver Federal Center, Denver, Colo., ch. engr. CD 9/21.

† Alaska—B. A. 10/19—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, construct Ship Creek Dam and intake, water treatment plant and approx. 31,000 ft. 20 in. supply main at East Fort Richardson, approx. 14 mi. from Anchorage. Inv. No. S45-507-51-4. Plans deposit $50.

LOW BIDDERS

† Missouri—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., rejected bids Aug. 3, constr. agriculture Levee Unit 400-L, located along left bank of Missouri River, Platte Co., CIVENG 23-028-50-175. CD 7/10.

† New Jersey—U. S. Eng., 80 Lafayette St., New York, Zone 13, N. Y., dredging approx. 337,300 cu. yd. all material except ledge rock from Raritan River to Arthur Kill Cutoff Channel, CIVENG-30-075-51-18, Middlesex Co., from Morris & Cummings Dredging Co., Inc., 44 Whitehall St., New York, N. Y., $289,389. CD 8/21.

New York—Dpt. P. Wks., Albany, Sept. 20, reconstruct 2 stone jetties for beach protection at Troy and Clayton Aves. on East Atlantic Beach in town of Hempstead, 467 and 435 ft. long and 12 ft. wide, Nassau Co., from Norline Constr. Corp., West Hampton Beach, $176,700. Est. $253,500. CD 8/31.

† New York—U. S. Eng., 80 Lafayette St., New York, Zone 13, cancelled bids to have been opened Sept. 6, flood control of Big Chazy River at Village of Champlain. Project postponed. CD 8/3.

AIRPORTS

BIDS ASKED

† Fla., Jacksonville — SPRINKLER SYSTEM — B. A. 10/11—U. S. Navy, Charleston Naval Base, Charleston, S. C., installing wet pipe sprinkler sys., with controls to fire alarm sys. at Naval Air Station, NOY 22632, Spec. 25225. Plans deposit $5.

CONTRACTS AWARDED

Mo., Kansas City—TERMINAL—City, c/o Reed McKinley, dir. P. Wks., City Hall, Zone 6, municipal air terminal, control tower bldg., to Interstate Constr. Co., 3621 Troost St., Zone 3, $292,000. Awarded 9/14. CD 11/10/47.

PUBLIC BUILDINGS

BIDS ASKED

Mass., Mattapoisett—SCHOOL—B.A. 10/9—Town, Supt. Schools, 2 story, brick, steel, masonry school addn., $250,000. Plans deposit $100. R. M. Stowell, Ned Point Rd., archt. CD 1/27.

Mass., Boston—SCHOOL—B.A. 10/11—City, Dpt. Schools, 26 Norman St., brick, steel school, Millstone Rd., Hyde Park, $320,000. Plans deposit $100. John M. Gray Co., 175 High St., archt.

N. Y., Elizabethtown—SCHOOL—B.A. 10/14—Bd. Educ., Central School Dist. 1, general contract; plumbing and heating; electrical work high and elementary school, $325,000. Sargent, Webster, Crenshaw & Folley, 2112 Erie Bldg., Syracuse, archts. CD 8/28/47.

Calif., Calexico—ARMORY—B.A. 10/17—State Div. Architecture, P. Wks. Bldg., Sacramento, 11,000 sq. ft., rein.-con. Type A armory for Calif. National Guard. Plans deposit $25. Anson Boyd, Sacramento, state archt.

▲ Ga., Americus—HOSPITAL—B.A. 10/19—City and Sumter Co., hospital, $1,500,000. Plans deposit $50. Extended date. Chas. H. McCauley, Jackson Bldg., Birmingham, Ala., archts. CD 9/16/49.

▲ Minn., Richfield—SCHOOL—B.A. 10/26—Bd. Educ., H. E. Rumpel, supt., high school, 70 St. and Harriet Ave., $1,600,000. Long & Thorshov, 400 Metropolitan Life Bldg., Minneapolis, archts. CD 11/28/49.

▲ Puerto Rico—HOUSING—Bids Asked—Puerto Rico Housing Auth., San Juan, housing, 500 units at Bayamon; 452 units at Arecibo; 256 units at Caguas; 196 units at Carolina; 160 units at Aibonita, $6,250,000. Fullana Constr. Co., and Font & Montilla, San Juan, constr. engrs. CD 5/26/43.

LOW BIDDERS

▲ Conn., Hartford—HOUSING—City of Hartford Housing Auth., 846 Asylum Ave., rejected bids Sept. 11, low rent housing, Kensington and Hampton Sts, $6,000,000. CD 9/14, under LB.

Ill., Lombard—SCHOOLS—School Dist. 44, Lombard, rejected bids Aug. 15, 11½ story, bsmnt., 50,000 sq. ft., L-shaped Junior High School, St. Charles Rd. at Lincoln Rd., $350,000. CD 8/9.

Ill., Lombard—SCHOOL—School Dist. No. 44, Lombard, rejected bids Aug. 22, Main and Pleasant St. School, $250,000. CD 8/17.

Kan., Kansas City—SCIENCE—Bd. of Regents, State House, Topeka, general contract 6 story basic science bldg. at University of Kansas Medical Center from Drier & Son, 1123 Quindaro St., Zone 4, $872,362.

Mich., Detroit—SCHOOL—City, Bd. Educ., 1354 Broadway, brick, steel, concrete Frank Cody High School, Cathedral St. from F. H. Taylor Co., 17360 Lahser St., Approx. $970,000. CD 8/8.

Mich., Marne—SCHOOL—Bd. Educ., rejected bids Aug. 29, 2 story, bsmnt., brick, steel Berlin High School, $250,000, Roger Allen & Assoc., 1126 Grand Rapids National Bank Bldg., Grand Rapids, archts. CD 8/23.

Minn., Moorhead—TURBINE GENERATING UNIT—City, P. A. Cook, clk., Sept. 15, furnish, install 6,000 kw. turbine generator unit at municipal power plant, from Brown Boveri Corp., 504 4 Ave., S., Minneapolis, $155,000.

▲ Okla., Enid—WARD—Bd. of Affairs, Capitol, Oklahoma City, Zone 5, Sept. 19, 4 ward bldgs. at Northern Oklahoma State Hospital, from Eldridge Constr. Co., Oklahoma State Hospital, Est. $600,000. CD 9/5.

Okla., Norman—NURSES HOME, etc.—Board of Affairs, Capitol, Oklahoma City, Zone 5, rejected bids nurses home at Central State Hospital, LB $465,448. Est. $360,000. CD 3/31.

Pa., Nanticoke—LAUNDRY—General State Auth., 18 and Herr Sts., Harrisburg, Sept. 20, general contract relocating laundry and remodel old laundry bldg. at Nanticoke State Hospital, from Raymond R. Hedde, Nanticoke $74,500. CD 8/28.

Pa., Somerset—DIETARY—General State Auth., 18 and Herr Sts., Harrisburg, Sept. 20, general contract dietary bldg. at Somerset State Hospital from Moyer Bros., 2605 Beale Ave., Altoona, $510,000. CD 8/28.

Pa., Torrance—TUBERCULAR PATIENTS—General State Auth., 18 and Herr Sts., Harrisburg, Sept. 20, general contract tubercular patients bldg. at Torrance State Hospital from L-D Building Co., Latrobe, $849,000. CD 8/30.

CONTRACTS AWARDED

▲ Calif., Berkeley—SCHOOLS—Berkeley Unified School Dist., 1414 Walnut St., 2 story rein.-con. steel, Franklin and Jefferson Schools, to Moore & Roberts, 693 Mission St., $1,564,000. Bids 8/31. CD 9/8, under LB.

Ill., Lombard—SCHOOL—School Dist. 44, Grand Valley Ave. and Madison St., 2 story, 131x217 ft. Junior High School, to Arnold Lies Co., 1515 New York St., Aurora, $455,000. Bids 8/8 rejected. CD 8/28.

Mich., Battle Creek—SCHOOL—City, Lakeview Consolidated Dist., 300 Highland Ave., brick, steel school, Minges Rd., to Travis Stover, Garrett, Ind., $250,000. Bids 9/1. CD 8/23.

† O., Brookfield—BUILDINGS—U. S. Eng., 830 W. Broadway, Louisville, Ky., 14 buildings for armed services, to Kenhill Constr. Co., 815 Myrtle Ave., Charleston, W. Va. $667,343. Bids 8/24.

COMMERCIAL BUILDINGS

BIDS ASKED

▲ Tex., Dallas—OFFICE—B.A. 10/16—Gibraltar Insurance Co. 417 N. Ervay St., 20 story bsmnt. office, $3,500,000. Plans deposit $50. Thomas, Jameson & Merrill, 820 N. Harwood St., archts. CD 12/28/49.

SOON LETS CONTRACT

D. C., Wash.—OFFICE—Eileen Desmond, Shoreham Hotel, soon lets contract, 5 story brick, limestone, concrete, steel office, 17 and K Sts. N. W., Leon Chatelain, Jr., 1727 K St. N. W., archt.

N. Y., New York—HOSPITAL—Columbia Presbyterian Medical Center, Broadway and 116 St., soon lets general contract altering bsmnt. floor and construct new formula room at hospital, Broadway and 168 St., Voorhees, Walker, Foley & Smith, 101 Park Ave., archts.

Pa., Wilkinsburg—CHURCH etc.—First Church of Christ, 2000 Sedgwick St., Pittsburgh, soon lets contract, 1 story, brick or native stone church and sunday school, $250,000. Charles Faulkner, 307 N. Michigan Ave., Chicago, Ill. archt.

LOW BIDDERS

W. Va., Bridgeport—CHURCH, etc.—First Methodist Church, Bridgeport, rejected bids Sept. 15, 2 story, bsmnt., T-shaped, 161x132 ft., stone church and sunday school, $400,000. Will re-advertise. CD 9/7.

CONTRACTS AWARDED

Calif., San Lorenzo (near Hayward)—RESIDENCES—Greenwood Corp., 859 San Mateo Dr., San Mateo, 65 residences, on Via Valencia, Via Matero, Via Morella and Via Toledo, to David D. Bohannon, 859 San Mateo Dr., San Mateo, $491,000.

Calif., San Mateo—RESIDENCES—Conway & Culligan, 3700 S. El Camino Real, 41 residences, Orinda, 46, Gillis, Regan and Pasadena Sts. Owner builds, $291,500.

▲ Fla., Jacksonville—BANK—Federal Reserve, c/o Toombs & Co., archts., 127 Walnut St. N. W., Atlanta, Ga., bank on George D. Auchter Co., foot of E. 56 St., $1,250,000. Bids 9/8, awarded 9/17. CD 9/13, under LB.

Ga., Atlanta—DENTAL SCIENCE, etc.—Emory University c/o contractor, dental science and classroom bldgs., to Barge Thompson Co., 136 Ellis St. N. E., Approx. $500,000.

Ill., Chicago—APARTMENT—Owner, c/o Leo S. Hirschfeld, archt., 327 S. La Salle, Zone 4, 61 unit 8 story, bsmnt., brick, concrete apartment, to C. A. Thornstrom, 5412 N. Clark St., Zone 40, $650,000. Awarded 9/14. CD 6/27.

▲ Ill., Chicago—FOOD STORE—Hillman's Pure Food Store, 1615 N. Harlem St., Zone 35, 52,000 sq. ft., steel, brick, stone, concrete food store, to Peter Hamlin Constr. Co., 9 S. Clinton St., Zone 6, Approx. $1,000,000. Awarded 9/17. CD 9/18.

▲ La., Shreveport—APARTMENTS—Town House Apartments, c/o contractor, two hundred ninety-nine apartment units, to R. P. Farnsworth & Co., 1515 S. Salcedo St., New Orleans, Approx. $2,138,000.

Md., Takoma Park—SHOPPING CENTER—New Hampshire Ave. Shopping Center, Inc., c/o 4461 Connecticut Ave. N. W., Wash., D. C., design and construction, brick, stone face 16 store shopping center, New Hampshire and Ethan Allen Aves. and parking area, to Kass Realty Co., 4461 Connecticut Ave. N. W., Wash., D. C., Approx. $250,000. Beall & Lemay, 1726 M. St. N. W., Wash., D. C., struct. engrs.

Mo., Kansas City—OFFICE—R. B. Jones & Sons, Inc., 11 and Central Sts., Zone 6, 4 floor office addn., to Long Constr. Co., Rialto Bldg., Zone 6, $500,000. Awarded 9/12. J. Lauck & Assoc., 6225 Brookside St., Zone 2, archts.

Pa., Avalon—APARTMENT—California Avenue Apartments, Inc., c/o Philip Friedman, archt., 121 S. Negley Ave., Pittsburg, 6 story, bsmnt., brick 48 suite apartment and garage, to Victory Terrace Constr. Co., Huff St., Greensburg, Approx. $300,000.

Pa., Spangler—HOSPITAL—Miners Hospital, Spangler, 3 story, bsmnt., 60x98 ft., brick hospital addn., alterations, to Moyer Bros., 2605 Beale Ave., Altoona, $409,735. Bids 8/24. CD 9/11, under LB.

INDUSTRIAL BUILDINGS

BIDS ASKED

▲ La., Lake Charles—REFINERY—Bids Asked—Continental Oil Co., Lake Charles, refinery expansion, $10,000,000; machine tool repair shop, $75,000; crude oil and products pipe lines, $100,000. CD 9/27.

Tex., Houston—LABORATORY—Bids Asked—Halliburton Oil Well Cementing Co., N. Esperson Bldg., masonry laboratory, concrete slab fdn. $100,000. Charles S. Chase, 1309 Anita St., archt.

SOON LETS CONTRACT

Fla., Miami—SALES AND SERVICE—Thiel Chevrolet Co., c/o Robert Filch Smith, archt., 201 Shoreland Bldg., soon lets contract, auto sales and service bldg.

W. Va., Clarksburg—BAKERY—Sanitary Baking Co., Clarksburg, soon lets contract, 1 story, 50x125 ft., steel, brick bakery addn. $75,000. W. H. Grant, 207 Waverly Way, archt.

LOW BIDDERS

Tex., Dallas—WAREHOUSE—United Auto Supply Co., Inc., Latimer and Louise Sts., Sept. 12, 1 story, 100x148 ft., concrete and form work, masonry, steel warehouse, concrete roof and columns instead, steel framing, from W. Earl King, 1437 Caddo St., $81,400. CD 9/7.

CONTRACTS AWARDED

▲ Calif., Vernon—PLANT—Stauffer Chemical Co., 636 California St., San Francisco, large modern sulphuric acid plant unit, to Leonard Constr. Co., 37 S. Wabash St., Chicago, Ill.

Conn., Hartford—PLANT—The Hartford Courant, 66 State St., newspaper plant, to Industrial Constr. Co., 120 Prospect St., $200,000. Ebbets Frid & Prentice, 60 State St., archts.

Ill., Chicago Heights—FOUNDRY—Benjamin Harris & Co., State Road, brick foundry bldg. on premises, to S. N. Nielson Co., 3059 Augusta Blvd., Chicago, Zone 12, $275,000. Bids 8/9, awarded 9/12. CD 8/1.

Ill., Chicago—FACTORY—Owner, c/o R. C. Ostergren, archt., 15153 N. Clark St., Zone 43, 2 story, steel, brick factory addn., to G. G. Constr. Co., 5151 N. Clark St., Zone 40, $78,000. Awarded 9/12.

Ill., Elgin—FACTORY—McGraw Electric Co., Raymond St., 1 story, 180x245 ft., brick, steel, concrete factory addn., to Chas. E. Gleitz & Son, 57 Douglas St., $250,000. Bids 8/31, awarded 9/15. CD 8/23.

Kan., Kansas City—WAREHOUSE—Safeway Stores, Inc., dist. office, Argyle Bldg., Kansas City, 6, Mo., warehouse, processing plants and truck depot, etc. on 46½ acres 12 to 15 south of Argentine Blvd. on 52 acres with Kansas City Southern Ry. tracks, to Long Constr. Co., Rialto Bldg., Kansas City 6, Mo. Awarded 9/15. Charles E. Keyser, 609 Minnesota Ave., Zone 1, archt.

▲ Pa., Bradford—PLANT—Speer Resistor Corp., St. Marys, 1 story, 200x300 ft. brick mfg. plant, separate contracts. Approx. $1,000,000. J. Fruchtbaum, Jackson Bldg., Buffalo, N. Y., engr.

Tex., Houston—WAREHOUSE—Melvin W. Jackson, Wilson Bldg., Dallas, warehouse, 5709 Navigation Blvd. Owner builds. $75,000.

Tex., Houston—WAREHOUSE—Santa Fe Supply Co., 1422 Fannin St., warehouse, own forces. Approx. $75,000.

▲ Tex., Snyder—PLANT—Sunray Oil Co. & Associated Operators, Philtower Bldg., Tulsa, Okla., isobutane and natural gasoline plant to The Fluor Corp., Ltd., M. Esperson Bldg., Houston. Approx. $6,250,000. CD 8/10.

▲ Ont., Sarnia—REFINERY—Canadian Oil Refineries Ltd., c/o Canadian Oil Companies Ltd., 204 N. Richmond St., Toronto, oil refinery at Broomfield, near here, to Stone & Webster Eng. Corp., 90 Broad St., New York, N. Y. Total $18,000,000. CD 4/4.

Ont., Toronto—WAREHOUSE—General Steel Wares Ltd., 199 River St., superstructure for 6 story, 130x280 ft., rein.-con. warehouse, to Foundation Co. of Ontario Ltd., 1220 Bay St., $520,000. CD 8/29.

UNCLASSIFIED

BIDS ASKED

Calif., Sacramento—STRUCTURAL STEEL FRAMING—B.A. 10/17—State Div. Architecture, P. Wks. Bldg., Sacramento, structural steel framing for eventual 3 story, 205,000 sq. ft. garage, Leonard F. Stark's, Native Sons Bldg., archt. CD 10/11/49.

† Ga., Augusta—PASSENGER ELEVATOR—B.A. 10/24—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash., 25, D. C., electric Passenger Elevator 4 in Bldg. 100, for Veterans Administration Hospital, at Augusta (Oliver) Spec. 50146, Proj. 10-51-20.

LOW BIDDERS

Texas—RURAL DISTRIBUTION LINES—Mid-South Electric Co-operative, Navasota, Sept. 15, 1159 mi. rural distr. lines and converting existing rural distr. lines, Grimes Co., from Sisco Electric Co., Conroe, $156,763. Est. $260,000. CD 8/30.

CONTRACTS AWARDED

Ariz., Phoenix—SWIMMING POOL, etc.—City, City Hall, 60x165 ft., municipal swimming pool, 30x60 ft. wading pool, to Dauth-Dandridge, 321 S. 24 St., $114,756. Awarded 9/12. R. Gail Baker, City Hall, city engr.

Colorado—RURAL DISTRIBUTION LINES—Grand Valley Rural Power Lines, Inc., Grand Junction, 129.87 mi. rural distr. lines and sys. improv., Mesa Co., to Robert H. Swaner, 555 13 Ave., Salt Lake City, Utah, $202,107. John C. Leavitt Co., Garden City, Kan., engr. CD 5/4.

Colorado—RURAL DISTRIBUTION LINES—Morgan County Rural Electric Assn., Fort Morgan, 348.2 mi. rural distr. lines, Morgan Co., to A. B. Reither Constr. Co., 602 Denham Bldg., Denver, $314,698. Miner & Miner, Greeley, engrs. CD 6/19.

Mo., Kansas City—RADIO STATION—K C M O Broadcasting Co., Commerce Bldg., Zone 6, remodeling 2 story bldg. into radio station, 31 and Grand Sts., to Hiram Elliott Constr. Co., Commerce Bldg., Zone 6, $250,000. Awarded 9/13.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Mont., Miles City**—City, bond election Nov. 7, water plant to supplement existing plant, incl. 1½ m.g. concrete storage tank on hill near city, install 20 in. mains encircling city, $1,390,000. Burns & McDonnell, 95 Troost Sts., Kansas City, Mo., consult. engr. CD 1/3.

Tex., Baytown—City, C. D. Middleton, mgr., water imprvs. incl. well and pump, 2 steel elevator storage tanks, distr. sys. exten. $428,400. Joe J. Rady, 811 Insurance Bldg., Fort Worth, consult. engr. CD 1/6/49.

Tex., Carthage—City, voted bonds, c.i. water lines, rehabilitation existing sys., $90,000; 500,000 gal. elevated steel tank and tower, $70,000; deep water supply well and pump station, $60,000. Wisenbaker, Fix & Assoc., 1415 N. Dixie Dr., Tyler, consult. engrs. CD 8/18.

Tex., Cuero—City, WW, $135,000.

▲ **Tex., Midland**—City, voted bonds, WW rehabilitation, exten. imprvs. $1,000,000., water supply sys., $400,000.

Tex., Robstown—City, voted bonds, water distr. lines, sys. rehabilitation, $50,000; water supply sys., $55,-000. Abe Wise, city engr. CD 8/31.

Tex., Texas City—City, voted bonds, imprvs., rehabilitation, extens. WW sys., $450,000. Jos. J. Rady, 811 Insurance Bldg., Fort Worth, consult. engr. CD 8/21.

▲ **Va., Winchester**—City, WW sys. addns., incl. supply, construction transmission main and treatment facilities. $2,085,000.

SEWERS, WASTE DISPOSAL

Idaho, Idaho Falls—City, City Hall, South Side Intercepter Sewer, $636,100. C. R. Black, city engr.

Ga., Brunswick—City, bond election Oct. 17, sewerage sys. imprvs. $100,000. CD 9/28/45.

Ia., Sioux City—City, various sewer construction over the city, $270,000. K. C. Gaynor, city engr. CD 3/12/46.

Minn., Battle Lake—Village, L. F. Olson, clk, complete sanitary sewerage sys., sewage treatment plant, $155,-507. W. C. Larson, Detroit Lakes, consult. engr.

N. Y., Buffalo—City, City Hall, expansion Bird Island sewage treatment works site and addns. to treatment plant. $477,000.

Okla., Enid—City, Gerald D. Wilkins, mgr., sanitary sewer mains, extensions, $499,355. Hudgins, Thompson-Ball & Assoc., 1100½ W. Main St., Oklahoma City, consult. engrs.

Okla., Enid—City, Gerald D. Wilkins, mgr., storm sewer mains, extens. $528,291. Hudgins, Thompson, Ball & Assoc., 1100½ W. Main St., Oklahoma City, consult. engrs.

Tex., Baytown—City, C. D. Middleton, mgr., storm sewer imprvs. to remedy flooding conditions in various sections of city, $285,000. Joe J. Rady, 811 Insurance Bldg., Fort Worth, consult. engr.

Tex., Carthage—City, voted bonds, sanitary sewer lines and rehabilitation existing collection sys., $100,000; sewage disposal plant, $125,000. Wisenbaker, Fix & Assoc., 1415 N. Dixie St., Tyler, consult. engrs. CD 8/18.

Tex., Cuero—City, sanitary and storm sewers, $165,000.

Tex., Houston—Bennie Strickland, 1402 Sunset Blvd., Houston, sanitary sewers, $60,000; storm sewers, $60,000, off Clinton St. Frank J. Metyko, Scalan Bldg., Houston, consult. engr.

Tex., Marshall—East Texas Baptist College, Marshall, sewers, $115,000.

▲ **Tex., Midland**—City, voted bonds, sanitary sewerage sys., rehabilitation, exten., imprvs. $675,000; sewage disposal plant, $350,000.

Tex., Newton—City, Jones O. Stringer, mayor, sanitary sewer exten., sewage treatment plant imprvs. $120,-600. Garrett Eng. Co., 5008 Almeda Rd., Houston, consult. engr.

Tex., Robstown—City, voted bonds, sewage disposal plant, $125,000; sanitary sewerage sys., imprvs. and extens. collection lines and rehabilitation, $200,000. Abe Wise, city engr. CD 8/31.

Tex., West University Place—City, c/o 3800 University Ave., Houston, enlarging sewage treatment plant, $100,000. Irving Peabody, 5815 Lake St., Houston, consult. engr.

Wash., Raymond—City, City Hall, sewerage sys. $254,-000. Stevens & Koon, Spalding Bldg., Portland, Ore., consult. engrs., F. E. Clark, city engr.

BRIDGES

▲ **Fla., Jacksonville**—Bd. Comrs. Duval Co., Court House, 740 ft. bridge across Ribault River on Lem Turner Rd. Approx. $2,000,000. Arthur Solee, co. engr.

Ill., Hillsdale—Rock Island and Whiteside Counties, Court House, Rock Island, bridge across Rock River, near here. $373,000.

Kan., Wichita—Sedgwick Co., 25 bridges in Eagle Drainage Dist. in vicinity of Bentley. $125,000.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, **Noble Co.**—bridge over Black Bear Creek on Hy. 40 near Morrison, $75,000.

Payne Co.—bridge over Lake Cushing on State Hy. 33, $113,000. S. K. McClelland, c/o owner, engr.

Tex., Midland—Midland Co., c/o Comrs. Court, Midland, voted $350,000 bonds, Big Spring Grade Separation. $450,000. CD 8/23.

▲ **Puerto Rico**—Dpt. of Interior, Insular Govt., San Juan, constructing new fixed bridge on highway connecting San Juan with Bayamon, replacing an old structure. Approx. $1,000,000. D. B. Steinman, 117 Liberty St., New York, N. Y., consult. engr.

Ont., Sarnia—Suburban Planning Bd., Sarnia, overpass on Christian St., earth-filled overpass with sodded slopes each side would cost Approx. $50,000; concrete, steel piers would cost Approx. $300,000.

STREETS AND ROADS

Ill., East Moline—City, voted bonds Aug. 21, asphalt surf. various streets. C. E. Missman & Assoc., Rock Island, engrs. CD 7/27.

Ill., Pekin—Tazewell Co., Court House, 16½ mi. County Road 7 exten. from State Route 29 eastward to County Rd. 6, $247,000. Elmer Mitchell, co. supt. Hys. CD 4/15/45.

Ind., Huntington—City, wid'n., 42 ft. portions E. Franklin, Poplar, Guilford, East and West Tipton, E. Washington Court, E. Market, N. Briant, and Byron Sts., $127,000.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, **Sequoyah Co.**—c. conc. 4 mi. U.S. 64 at Muldrow, $451,000.

grading, Cleaning U.S. 59 from Sallisaw south to Ark River, $400,000. S. K. McClelland, c/o owner, engr.

Tex., Colorado City—City, street paving, $100,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

Tex., Cuero—City, street paving, $200,000. CD 1/19/49.

Tex., Hillsboro—Hill Co., Court House, bond election Oct. 14, road constr. and paving in Malone Dist. $200,000. CD 11/3/49.

▲ **Tex., Marshall**—East Texas Baptist College, Marshall, aspn. and c. conc. paving in school area. $1,000,000.

Tex., Midland—City, voted bonds, street imprvs., paving, $750,000.

Tex., Midland—Midland Co., c/o Comrs. Court, Midland voted $450,000 bonds, street imprvs., incl. imprv., hard paving to North Front St. from east to west city limits $575,000. CD 8/23.

Tex., Pampa—City, street paving, $150,000.

Tex., Robstown—City, voted bonds, street imprvs., paving, $240,000. Abe Wise, city engr. CD 8/31.

Wash., Montesano—City, City Hall, resurf. 45 blocks streets. $250,000. C. B. Shain, Olympia, consult. engr.

Wash., Tacoma—City, City Hall, bond election Nov. 7, rebuilding Waterfront Rd. approach ramps to 11 St. Bridge and widn. S. 56, N. Stevens and S. M. Sts. $950,000. D. E. Morris, city engr. CD 4/14.

Ont., Kitchener—City, paving 5 city streets. Approx. $211,500.

EARTHWORK, WATERWAYS

Tex., Midland—Midland Co., c/o Comrs. Court, Midland, voted $200,000 bonds, drainage. $392,200. CD 8/23.

Tex., Orange—City, c/o Port Comm., Orange, dredging, exten. depth and width of turning basin. $225,000. Raymond Sanders, City Hall, engr.

AMERICANS ABROAD

Thailand, Bangkok—Intercontinental Hotels Corp., 41 E. 42 St., New York 17, N. Y., U. S. A., and Pra Nakron Hotel Co., Ltd., Bangkok, plans hotel. $2,-000,000.

LATIN AMERICA

Colombia, Quibo—Jose Cadavid, dir. Pub. Wks. Economy and Institutions, State of Choco, will take bids until Sept. 30, for engineering services to make study for hydro electric plant on Tutunendo, Playas and Atrat Rivers.

Mexico, Queretaro—State Govt., Palacio del Estado, Queretaro, plans sewerage and street paving. $600,-000.

PUBLIC BUILDINGS

▲ **Ark., Blytheville**—HOSPITAL—Roland Green, judge Mississippi Co., Blytheville, plans by Bruce R. Anderson, 502 Wallace Bldg., Little Rock, 2 unit 70-bed hospital at Blytheville and 40-bed unit at Osceola. $1,464,264.

▲ **Calif., Los Angeles**—HOUSING—Los Angeles City Housing Auth., 1401 E. First St., plans by Robert A. Alexander & Richard Neutra, 2300 Silver Lake Blvd., 3,500 housing units, Elysian Heights Development, $35,000,000; plans by Allen & Lutzi, 6112 Wilshire Blvd., 2,000 unit Rose Hill extension, $20,-000,000; plans by W. F. Ruck, 940 S. Figueroa St., 500 unit Aliso Village extension, $5,000,000; plans by Theodor Criley & Charles Burge, 610 W. 4 St., 300 unit Pueblo Del Rio extension, $3,000,000; plans by Armand Monace, 2721 Lakewood Ave., 200 unit Rancho San Pedro extension, $2,000,000; plans by Burnett C. Turner, 5657 Wilshire Blvd., and Ain, Johnson, Day, 2305 Hyperion St., 400 unit Hacienda Village extension, $4,000,000; plans by Paul Hunter, 6354½ S. La Brea St., 200 unit Estrada Courts extension, $2,000,000; plans by James R. Friend, 556 W. 5 St., 550 unit Jordan Downs, $5,500,000; plans by Spaulding, Rex, DeSwarte, 3305 Wilshire Blvd., 500 unit Imperial Courts, $5,000,000; plans by Paul Williams, 3757 Wilshire Blvd., 1,200 unit, Imperial-Compton, $12,000,000; plans by Albert Cruz, 554 S. La Brea St., 500 unit West Los Angeles, $5,000,000; plans by Arthur Gallion, Victor Gruen, 8460 Santa Monica Blvd., 300 unit Pacoima, $3,000,000. Reginald F. Johnson & Arthur Gallion, 832 W. 5 St. archts.

▲ **Conn., East Hartford**—SCHOOL—Bd. Educ., 200 Burnside Ave., plans by Nichols & Butterfield, 998 Farmington Ave., West Hartford, 1 and 2 story, concrete brick high school, Main St. and Silver Lane. $3,000,000. CD 2/25/49.

▲ **Conn., Hamden**—SCHOOL—State, State Capitol, Hartford, plans by Polak & Sullivan, 1394 Chapel St., New Haven, brick, steel, concrete Eli Whitney Technical School, R-80. $1,500,000.

▲ **Conn., Hartford**—POLICE STATION, etc.—City, C. E. Carleton, mgr. 550 Main St., plans by Willard Wilkins, 945 Asylum Ave., police station and court house. $2,500,000. Irving Skilton, city engr.

Conn., West Hartford—SCHOOL—Town, Bd. Educ., Dr. C. H. Thorne, supt., plans by Willard Wilkins, 945 Asylum Ave., Hartford, 2 story, brick, steel, concrete school Westminster Farm Tract between Westminster Rd. and Spring Lane. $600,000. CD 5/8.

▲ **Ill., Canton**—SCHOOL—Canton Union School Dist., c/o Supt. of Schools, voted $1,250,000 bonds high schools.

Ill., Rock Island—HOSPITAL—Rock Island Co., Court House, $750,000 bond election Nov. 7, hospital and infirmary. CD 3/29/45.

Kan., Turner—SCHOOL—Turner High School Bd., Turner, high school. $450,000.

Ky., Georgetown—HOSPITAL—Scott Co., Fiscal Court, $300,000 bond election in November, annex to John Graves Ford Memorial Hospital. $690,142.

Ky., Maysville—HOSPITAL—Bd. Trustees, Maysvood Hospital, hospital addn. and nurses home. $449,981.

La., Minden—COURTHOUSE and JAIL—Webster Parish Police Jury, bond election Oct. 10, courthouse and jail, $950,000. CD 6/22.

▲ **Mass., Dartmouth**—JAIL HOUSE—Comrs. Bristol Co., Court House, plans by Edward Corbett, 49 Purchase St., Fall River, rein.-con., steel jail house, $1,600,-000. CD 5/10/46, under Mass., Taunton.

Mass., Framingham—SCHOOL—Town, School Bldg. Comm., plans by Anderson Nichols & Co., 53 State St., Boston, 2 story, bsmnt., brick, concrete, steel school Warren Rd. Dist. $760,000. CD 12/8/49.

▲ **Mass., Norfolk**—PRISON—Commonwealth of Mass., Dpt. Correction, State House, Boston, plans by Desmond & Lord, 6 Beacon St., Boston, State Prison, P. 104. $3,425,000.; plans by Desmond & Lord, 6 Beacon St., Boston, consult. engr. CD 10/21/48.

▲ **Mass., West Bridgewater**—SCHOOL—Town, Supt. Schools, plans by Adden Parker, Clinch & Crimp, 177 State St., Boston, 1 and 2 story, bsmnt., brick, rein.-con., steel high school, $1,000,000. Hubbard, Lawless & Blakeley, 177 State St., Boston, mech. engrs. Gilbert Small & Co., 10 State St., Boston, struc. engrs. CD 1/26.

▲ **Mich., Coldwater**—ADMINISTRATION and HOME—State, A. N. Langlois, dir. Bldg. Dpt. 115 State Office Bldg., Lansing, plans by Harley Ellington & Day, 153 E. Elizabeth St., Detroit, 3 story, brick, steel administration bldg., $360,000; brick, steel home addn. $1,100,000, for Coldwater State Home and Training School.

▲ **Mich., Kalamazoo**—HOSPITAL—State, A. N. Langlois, dir. Bldg. Dpt., State Office, Lansing, brick, steel, concrete tuberculosis sanitorium. $1,000,000.

▲ **Mich., Lansing**—OFFICE—State, A. N. Langlois, dir. Bldg. Dpt., State Office Bldg., plans by Smith, Hichman & Grylls, Inc., 800 Marquette Bldg., Detroit, 8 story, brick steel office state bldg., West Michigan Ave., West Allegan, So. Chestnut and So. Pine Sts., $4,300,000. CD 11/22/49.

Minn., Duluth—SCHOOL—Bd. Educ., Homecroft School, Unorganized School Dist., St. Louis Co., W. W. Salmi, clk. 217 E. Calvary Rd., plans by A. R. Melander, 603 Alworth, 1 story school, $349,657.

Mo., University City (St. Louis 5, P. O.)—SCHOOL—City of University City School Dist. Bd. Educ., Dr. Julius E. Warren, supt. Schools 66701 Delmar Blvd., brick, concrete school on 5 acre site on 82 St. south of Fogerty Park, $400,000-$500,000. 1/23/45.

▲ **N. Y., Elmhurst**—HOSPITAL—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, plans by Sawyer, Fellheimer & Wagner, 155 E. 42 St. New York, Zone 17. Elmhurst General Hospital, 78 St., Broadway, Baxter and 41 Aves. $18,000,000. CD 11/23/49.

N. Y., Hicksville—SCHOOL—Bd. Educ., Hicksville, plans by Knappe & Johnson, 368 E. 149 St., New York, Zone 55, 20 room school, Lee Ave. $600,000.

▲ **N. C., Charlotte**—SCHOOLS, Mecklenburg Co. Bd. Educ., Harry P. Harding, supt. City Schools, bond election Sept. 30, city sys. schools $3,555,000; county sys., schools $1,775,000. CD 5/1/46.

N. C., Raleigh—PARKING—City, Roy Braden, mgr., City Hall, parking bldg., Davie and Wilmington Sts. $700,000.

▲ O., Fremont—SCHOOLS—Bd. Educ., Fremont, $1,850,000 bond election Nov. 7, replace Hayes and Atkinson grade schools. CD 8/31.

O., Lisbon—COUNTY JAIL—Comrs. Columbiana Co., Lisbon, cancelled $300,000 bond election to have been held Nov. 7, county jail. CD 11/12/47.

Ore., Ontario—HIGH SCHOOL—School Dist. 8-C, Ontario, voted $663,000 bonds, high school. CD 8/3/45.

▲ Ore., Salem—SCHOOL—School Dist. No. 24CJ Marion Co., Salem, school. $2,158,000.

Pa., Pittsburgh—NURSES HOME—General State Auth., 13 and Herr Sts., Harrisburg, nurses home at University of Pittsburgh, Western State Psychiatric Institute. $300,000. A. F. Jones, c/o owner, ch. engr.

▲R. I., Providence—SCHOOL—City, School Dpt., 20 Summer St., plans by Cull & Robinson, 811 Industrial Trust Bldg., 2 story, brick, steel, concrete school, Fox Point. $1,600,000. CD 9/1.

R. I., Woonsocket—GYMNASIUM—City, c/o mayors office, Woonsocket, plans by Oliver W. Fontaine, 285 Main St., gymnasium addn. to Junior High School. $500,000. CD 9/18.

Tex., Aransas Pass—HIGH SCHOOL—Aransas Pass Independent School Dist., Aransas Pass, voted bonds, high school, repairing existing school. $425,000. Brock & Anderson, 1012 Jones Bldg., Corpus Christi, consult. archts.

Tex., Brady—SCHOOL—Brady Independent School Dist., Brady, bond election Sept. 26, 1,500 seating capacity gymnasium, elementary school addns., $400,000; high school addn., $300,000; Junior High School addn., $250,000. CD 7/12/46.

Tex., Fort Worth—COURT HOUSE—Tarrant Co., Gus Brown, judge, Court House, remodeling and repairs with new elevators to court house and criminal courts bldg. Approx. $600,000. Wyatt C. Hedrick Co., 1005 First Natl. Bank Bldg., consult. engr.

Tex., Garland—SCHOOLS—Garland Independent School Dist., Garland, plans by Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, school classroom addns., $250,000; school, $250,000. CD 7/19.

▲ Tex., Houston—HOSPITAL—Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Walter C. Moore, bd. superv. archt., c/o owner, masonry hospital (for preventive type mentals), $3,000,000.

▲ Tex., Houston—COURT HOUSE, etc.—Harris Co., Court House, $2,500,000 bond election Oct. 14, court house and jail, $7,000,000. CD 11/8/48.

▲ Tex., Mission—HOME—Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Walter C. Moore, bd. superv. archt., c/o owner, converting sanatorium into home for State Senile Patients, masonry constr., $1,500,000.

▲ Tex., Orange—SCHOOLS—Orange Independent School Dist., Orange, Carr-Junior High School addn., remodeling, $300,000; high school and elementary remodeling, imprvs., $350,000; elementary school, $250,000; plans by Stone & Pitts, 1872 Calder St., Beaumont, masonry type school, concrete slab fdn., $250,000. CD 6/20/46.

Tex., Pharr—San Juan-Alamo—SCHOOLS—Pharr-San Juan-Alamo School Dist., Pharr, plans by Merle Kelley, consult. archt., Pharr, 38 classrooms, 5 cafeterias at San Juan and Alamo, $275,000; 20 room school at Pharr, $325,000. CD 9/15.

▲ Tex., San Antonio—SANATORIUM—Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Walter C. Moore, bd. superv. archt., c/o owner, masonry 250-500 beds tuberculosis sanitorium, $2,500,000.

▲ Tex., Tyler—HOME—Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Walter C. Moore, bd. superv. archt., c/o owner, converting existing sanatorium into home for State Senile Patients, masonry constr., $1,500,000. CD 12/9/48.

▲ Va., Halifax—HIGH SCHOOL—Halifax Co., Halifax, plans by Stanback & Scribner, 112 3rd St. N. E., Charlottesville, high school, $1,250,000. CD 4/13.

▲ N. B., Saint John—HOSPITAL—Govt. of Canada, Dpt. Veterans Affairs, MacKenzie Ave., Ottawa, Ont., plans by H. S. Brenin & Assocs., St. John, hospital (second phase) remodeling bldgs., theatre, auditorium, operating rooms and remodeling existing bldg., $1,000,000. CD 4/24.

Ont., Weston—SCHOOL—Bd. Educ., C. R. Marchand, secy., plans by Govan, Ferguson, Lindsay, Kaminker, Maw, Langley & Kleenleyside, 515 Jarvis St., Toronto, high school, $420,000. CD 4/13.

COMMERCIAL BUILDINGS

Calif., Fairfax—RESIDENCES—Robert W. Bogh, 1355 Sir Francis Drake Blvd., San Anselmo, 500 residences on Marinda Oaks tract, $500,000.

Fla., Deland—HOSPITAL—Estate of Bert Fish Testamentary Trust, Deland, plans by James E. Pollard & Assoc., Sec. of Fish Trust, Deland, masonry hospital, E. New York and E. Richmond Ave., $600,000.

Fla., Pensacola—HOUSING—Dpt. Navy, Bureau Yards & Docks Annex, Arlington, Va., construct, manage and finance, 200 housing units, Young & Hart, 614 Blunt Bldg., Pensacola, archts.

Fla., Whiting Field—HOUSING—Dpt. Navy, Bureau Yards & Docks Annex, Arlington, Va., construct, manage and finance 96 housing units, Young & Hart, 614 Blunt Bldg., Pensacola, archts.

La., New Orleans—CHURCH—St. James Major Church, Gentilly Blvd. between Franklin Ave. and Wisteria St., plans by Wm. R. Burk, 414 Pan American Bldg., 3 story parochial school and church.

Mass., Stoneham—HOSPITAL—New England Sanitarium & Hospital, 5 Woodland Rd., plans by M. A. Dyer Co., 24 School St., Boston, brick, steel, concrete hospital addn., Woodland Rd. $800,000. CD 9/13.

N. Y., Brooklyn—SCHOOL—St. Marks Roman Catholic Church, 2609 E. 19 St., Zone 29, plans by William J. Boegel, 12 E. 48 St., New York, Zone 17, altering 2 story school, 2602-22 E. 19 St. $250,000.

N. Y., Brooklyn—APARTMENT—600 East 18 Street Corp., 885 Flatbush Ave., Zone 26, plans by M. E. Ungarleider, 191 Joralemon St., Zone 2, 6 story apartment, 482-602 E. 18 St. $500,000.

N. Y., Flushing—APARTMENT—Dominick J. Tretola, c/o Kavy & Kavovitt, archts., 44 Court St., Brooklyn, Zone 2, 6 story, apartment, Sanford Ave. and Frame Pl. $630,000.

N. Y., Glendale—SCHOOL—St. Pancras Roman Catholic Church, 68-20 Myrtle Ave., plans by F. J. Berlenbach, 32 Court St., Brooklyn, Zone 2, religious school, Myrtle Ave. and 68 St. $600,000.

N. Y., Jamaica—APARTMENT—Samuel Lifrak c/o Julius Fishkind, archt., 1x1-19 Jamaica Ave., 6 story apartment, Lander St. north of Pershing Crescent, $420,000.

▲ N. Y., New York—OFFICE—477 Madison Ave. Corp., c/o Kahn & Jacobs, archts., 2 Park Ave., Zone 16, 23 story, office, Madison Ave. and 51 St. $2,500,000. Weinberger & Weisdorf, 33 S. 60 St., Zone 19, engrs.

N. Y., New York—BANK—National City Bank of New York, 55 Wall St., Zone 5, plans by Lusby Simpson, c/o owner, bank alterations, 686 Broadway, $250,000. Purdy & Henderson Assoc., 1 Madison Ave., consult. engrs.

▲ N. Y., New York—HOSPITAL—St. Vincents Hospital, 7 Ave. and 11 St., Zone 14, plans by Eggers & Higgins, 120 E. 42 St., Zone 17, 14 story hospital addn., 7 Ave. and W. 12 St. $1,200,000.

N. D., Valley City—HOSPITAL—Mercy Hospital, Valley City, plans by Hills, Gilbertson & Hayes, 1409 Willow St., Minneapolis, Minn., hospital addn. $500,000.

Pa., Bradford—HOUSING—Bradford Homes, Inc., Bradford, rental housing, 6 one-bedroom units, 36 two-beuroom units and three 3-bedroom units, 2 story basmt., masonry garden type. $490,000.

▲ Tex., Houston—DWELLINGS—H. E. Fowler & Co., Inc., 1805 Haver St., 250 frame dwellings, concrete slab fdn., on 73 acre tract, extension off Long Point Rd. $1,050,000.

▲ Tex., Houston—BANK, etc.—South Texas National Bank, 211 Main St., plans by Kenneth Franzheim, 2306 Crawford St., 15 to 17 story office and bank, $2,750,000. CD 2/16.

Tex., San Antonio—DWELLINGS—Richardson Development Co., Gunter Bldg., 42 addnl. frame dwellings, concrete post fdn. $280,000.

Ont., Kingston—HOSPITAL—Reverend Sisters of Providence, King St., plans by L. V. Gallaher, 155 Brock St., 3 story, concrete, steel, store addn., to St. Mary of the Lake Hospital. $850,000.

INDUSTRIAL BUILDINGS

▲Conn., New Haven—TRUCK TERMINAL—Adley Express Co., 216 Crown St., plans by Leo F. Caproni, 1221 Chapel St., truck terminal, Laral Wheeler and Goodwin Sts. $1,000,000.

Ind., Fort Wayne—FACTORY—Herm Mar Industries, Inc., Lima Rd., 80x200 ft. masonry factory, California Rd. and the Grand Rapids & Indiana R. R.

Mass., Northampton—FACTORY—Kollmorgen Optical Co., 2 Franklin St., Brooklyn, N. Y., plans by Frank Parker Assoc., 256 E. 49 St., New York, N. Y., factory, N. King St., $250,000. CD 9/12.

N. Y., Brooklyn—STORAGE—F. & M. Schaefer Brewing Co., 430 Kent Ave., Zone 11, plans by Freed & Gordon, 642 Madison Ave., New York, Zone 22, 1 story, storage bldg., 457-471 Kent Ave. $150,000.

O., Ashland—FACTORY—F. E. Myers & Bro. Co., Orange St., factory imprvs., pump-making factory imprvt. and expansion in tank plant, iron and brass foundries, machine shops, and shipping department. $250,000.

▲Wash., Seattle—PARKING GARAGE—H. Broderick, et al., 2 and Cherry Sts., Zone 4, plans by J. Graham, Dexter Horton Bldg., parking garage. $3,500,000.

W. Va., Bluefield—MILL—Sayler Lumber Co., Bluefield, rebuilding mill. Approx. $100,000.

▲ Ont., North Bay—SHOP—Ontario Northland Ry., North Bay, diesel railroad engine maintenance shop. $1,000,000. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, engrs. CD 6/1

▲ Ont., Sarnia—PLANT—Polymer Corp. Ltd., No. 4 Hy., plant expansion, Approx. $6,000,000.

▲ Que., Chicoutimi—PLANT—Syndicate, c/o Emile Gagnon, N. P., 181 Racine St., plant on 600 acre site, St. Fanille Range. $1,000,000.

UNCLASSIFIED

Ala., Montgomery—MOTOR COURT—W. G. McGrady & Ralph Curton, Montgomery, motor court. $250,000.

▲ Idaho—DAM, etc.—Washington Water Power Co., W. 825 Trent St., Spokane, Wash., dam and power plant on Clark Fork River at Cabinet Gorge, $40,000,000.

▲ Ill., Bloomington—POWER STATION, etc.—City, City Hall, power station and WW imprvs. $4,000,000. Alvord Burdick & Howson, 20 N. Wacker Dr., Chicago, Zone 6, consult. engrs. CD 7/20/44.

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CONSTRUCTION REPORTS-Second Section

WATER SUPPLY

BIDS ASKED

Calif., Long Beach—B.A. 10/13—City Water Dpt., Brennan S. Thomas, genl. mgr., 215 W. Broadway, supply, discharge lines, drain lines and electrical sys. at J. Will Johnson Reservoir. Approx. $28,000. Plans deposit $25.

CONTRACTS AWARDED

† La., Jacksonville—City, City Hall, addns., extens. to waterwork distr. plant, Part 3, to Joe Reinertson, 46 N. E. 6 St., Miami, $845,711; elevated steel water tank on Linden Ave., to R. D. Cole Mfg. Co., Newman, Ga., $71,740. Bids 9/21.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Md., Baltimore—B.A. 10/11—City, Bureau Sewers, 312 Municipal Bldg., Zone 2, storm drain Contr. 265, 880 lin. ft. 24- to 36-in. rein. con. drains; 2,015 lin. ft. 3- to 15-in. vitr. clay drains; 115 lin. ft. manholes, 80 cu. yd. concrete, 1,200 lb. reinforcing steel, etc. Plans deposit $5. John J. Hunt, 312 Municipal Bldg., Zone 2, sewer engr. CD 1/12/45.

LOW BIDDERS

▲ Ill., Chicago—Sanitary Dist. of Chicago, 910 S. Michigan St., Zone 5, Contr. 18-C, intercepting sewer in Calumet and Blue Island Areas from Kenny Constr. Co., 111 W. Washington St., Zone 2, $946,762; Cont. 18-D, intercepting sewer, Blue Island and Calumet Areas, from Santucci Constr. Co., 5044 Carol St., Skokie, $1,449,971.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

October 10	October 17
Massachusetts	Indiana
Ohio	October 18
	California
	Louisiana

CONTRACTS AWARDED

▲ Calif., Los Angeles—City Bd. of P. Wks., City Hall, subway under Los Angeles Municipal Airport, Sepulveda Blvd. between Century Blvd and Imperial Blvd., 1,910 ft. long, two 36½ ft. spans, rein.-con., to Oberg Bros. Constr. Co., 401 N. Florence Ave., Inglewood, $1,583,478. Bids 9/13, awarded 9/22. CD 9/18, under LB.

Ont., Toronto—Canadian National Rys., E. R. Logie, ch. engr., 36 Union Station, Toronto, railway underpass at Dupont St.; near Lansdowne Ave., incl. removal street pavements, rein.-con. abutments, retaining walls, precast bridge slabs, elevated sidewalks and centre piers, to Russell Constr. Co. Ltd., Harbor Comn. Bldg., $645,000. Bids 8/30, awarded 9/21. CD 8/29.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

October 9	October 17
New Hampshire	Kansas
October 10	New Jersey
Maryland	October 18
Ohio	California
October 12	Louisiana
Kansas	

† Me., Bangor—B.A. 10/10—First Naval Dist. Headquarters, 495 Summer St., Boston, Mass., bit. conc. parking area, approx. 130x155 ft., incl. drainage and timber bumper blocks at U. S. Naval Reserve Training Center, Spec. 25479.

La., Metairie—B.A. 10/11—Jefferson Parish Police Jury, c/o engr., c. conc. Severn Ave. Plans deposit $20. Extended date. S. V. Applewhite, 424 Millaudon St., New Orleans, engr. CD 8/10.

Pa., Embreeville—B.A. 10/11—Dpt. Property & Supplies, 1400 N. 9 St., Harrisburg, finished grades, road and walks at Embreeville State Hospital. Plans deposit $5. Baader, Young & Schultze, 1500 Walnut St., Phila., archts. W. B. Jefferis, c/o owner, ch. engr.

† Washington—B.A. 10/12—Bureau Reclamation, Dpt. Interior, Ephrata, Wash., constr. streets, walks, water and sewerage sys. for Burke construction camp, Columbia Basin Proj., Spec. R1-CB-69 (Region 1). L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

Calif., Los Angeles—B.A. 10/17—Bd. Supervs. Los Angeles Co., 501 Hall of Records, imprv. Arrow Hy. between Irwindale Ave. and Azusa Canyon Rd., CC-0-686. Approx. $50,000. C. E. Arnold, co. engr. CD 9/19/45.

New Jersey—B.A. 10/17—New Jersey Turnpike Auth., 65 Prospect St., Trenton.

Salem and Gloucester Counties—Contr. 59, preparation of subgrade, roadway drainage, Turnpike shoulder and cross road pavement, sidewalks, curbs, guard rails, top soil and seeding and incidental work in connection with completion N. J. Turnpike Sect. 1, between Deepwater and Woodbury. Plans deposit $5. CD 7/13/49.

O., Toledo—B.A. 10/17—Comrs. Lucas Co. Court House, Road Imprvt. 600, widn., deepening Prairie Ditch, $38,474; road Imprvt. 601, grading, draining, curbing, widn., b. conc., resurf. Suder Rd., $45,870; Road Imprvt. 602, grading, draining, curbing, widn., b. conc., resurf., Bancroft St., $59,296. Guy Neeper, Court House, co. engr. CD 5/11.

La., Lake Arthur—B.A. 10/19—Town, street imprvs. Porter, Barry & Switzer, 1730 Main St., Baton Rouge, engrs. CD 7/12.

New Jersey—B.A. 10/26—New Jersey Turnpike Auth., 65 Prospect St., Trenton.

Mercer and Burlington Counties—Contr. 62, approx. 21 mi. Turnpike pavement of either c. conc. or b. conc., comprising two 24 ft. wide roadways with paved shoulders and grass median strip, together with pavement of Mt. Holly and Bordentown interchanges and of drainage, gutters, curbing, topsoiling and incidental work in connection with N. J. Turnpike Sect. 3, between Moorestown and Allentown. Plans deposit $5. CD 7/13/49.

LOW BIDDERS

▲ California—State Div. Hys., 120 S. Spring St., Los Angeles, Sept. 21, c. conc. on cement treated subgrade, etc., constr. 3 grade separation structures, 2 pedestrian overcrossings, and provide freeway with 6-lane divided roadbed 2.3 mi. Santa Ana Freeway between Augusta Ave. and 0.1 mi. easterly of Rio Hondo, Los Angeles Co., from United Concrete Pipe Corp. & Ralph A. Bell, Box 42°, Baldwin Park, $1,645,115. CD 8/28.

California—State Div. Hys., Sacramento, road mix on grav. surf. 12.8 mi. between Grasshopper Valley Ranch and Hayden Hill Rd., Lassen Co., from W. H. O'Hair Co., Box 278, Colusa, $273,360; plant mix on untreated rock surf., apply seal coat 4 mi. between Hot Springs Canyon and Tequepis Canyon, Santa Barbara Co., from C. A. Payton, Box 207, Riverside, $648,439. CD 8/28.

Indiana—state Hy. Comn., Indianapolis, Sept. 26, paving 2.627 mi., Rds. 24 and 30 from Hamar St. to Meyer Rd., Allen Co., from Meitz Sicars Fielmer Co., Inc., 1212 Clark St., Fort Wayne, $545,469, est. $555,962; paving 1.666 mi. State Rd. 46, Columbus, Bartholomew Co., from Berns Constr. Co., 312 E. Washington St., Indianapolis, $225,067, est. $232,183. CD 9/12.

▲† Alaska—Alaska Rd. Comn., Juneau, grading, surf., bit. surf. 34.7 mi., Richardson Hy., Sect. H from Valdez to Mile 36 from McLaughlin, Inc., Ford Bldg., Great Falls, Mont., $3,801,641. CD 8/30.

▲† Alaska—Alaska Road Comn., Juneau, grading, bit. 51.75 mi., Alaska Hy., Big Delta to Sears Creek, from Babler Bros. and Rogers, 4617 S.E. Milwaukee St., Portland, Ore., $1,884,391. CD 8/28.

CONTRACTS AWARDED

Ohio—State Hy. Dpt., Columbus, grading, draining, paving and concrete, steel girder Br. LA-6-47, USR 6-SR 174, Lake Co., to The Horvitz Co., 913 Midland Bldg., Cleveland, $658,949. Est. $637,900. Awarded 9/12. CD 8/3, under LB.

Quebec—Dpt. Roads, Quebec City (Prov. Govt.) rebuilding Saulange Canal Hy., widn. road from 22 to 30 ft. with 8 ft. shoulders and 16 mi. guard rails on either side, to Raymond McDonnell Co. Ltd., 2020 Union Ave., Montreal. Approx. $500,000. E. Gohier c/o owner, engr.

EARTHWORK, WATERWAYS

BIDS ASKED

† North Carolina—B.A. 10/10—U. S. Eng., 308 Custhouse - Wilmington, maintenance dredging, Wilmington Harbor, (Cape Fear River) in Turning Basin, Anchorage Basin, Anchorage Basin Approach Channel, between Reach Fourth East Jetty and Keg Island Channels. Serial No. CIVENG-11-075-51-9.

Minn., Albert Lea—B.A. 10/13—Freeborn Co., A. C. Hartz and constr. Judicial Ditch 26, 241,965 cu. yd. open ditch; excav. 288 lin. ft. 26- to 72-in. culvert, forty-three 12 in. standard flood water inlets in Freeborn and Faribault Counties, $57,246, C. V. Jones, Albert Lea, engr.

† Oklahoma—B.A. 10/16—U. S. Dpt. Agriculture, Soil Conservation Serv., c/o L. P. Merrill, Reg. Dir., Fort Worth, Tex., flood detention reservoirs, earthfill embankments, etc. on Washita River Watershed in Sandstone Creek Watershed, 9 mi. south and 7 mi. east of Cheyenne. Approx. $50,000.

† Oregon—B.A. 10/17—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., channel, levee and rein.-con. structures, along Walla Walla River (Sect. 6) Milton-Freewater Proj., Stations 108 to 128 plus 00, Serial No. CIVENG-45-165-41-20.

LOW BIDDERS

▲† North Dakota—U. S. Eng., Fort Lincoln, Box 300, Bismarck, Sept. 21, generators for Garrison Dam power house Inv. 2, from General Electric Co., Fergus Falls, Minn., $4,951,994. CD 6/1/44.

CONTRACTS AWARDED

▲† Washington — Bureau Reclamation, Dpt. Interior, Coulee Dam, river imprvs. and repairs spillway face and spillway bucket, Spec. 3143, Columbia Basin Proj., Grand Coulee Dam, to Pacific Bridge Co., 333 Kearny St., San Francisco, Calif., $2,662,866. Est. $2,401,410. Bids 9/7, awarded 9/20. CD 9/18, under LB.

AIRPORTS

BIDS ASKED

N. Y., Jackson Heights—BRIDGE APPROACH—B.A. 10/9—At office Chief Engineer of The Port of New York Auth., 111 8 Ave., New York. Zone 11. Contr. LGA-35, rehabilitation 102nd Street Bridge Approach at LaGuardia Airport. Plans deposit $25.

▲ Conn., Windsor Locks—TERMINAL BLDG.—B.A. 10/11—State, State Capitol, Hartford, B.A.-CC-47, terminal bldg., $1,000,000. Phelps Barnum & N. S. Thompson, 250 Park Ave., New York, N. Y., archts. CD 12/2/49.

† Ill., Belleville—STADIUM—B.A. 10/11—U. S. Eng., 520 Merchandise Mart, Chicago, Zone 54, constr. soprts stadium at Scott Air Force Base, Serial No. Eng-11-032-51-10.

N. B., Chatham—RUNWAY, etc.—B.A. 10/11—J. D. McCarthy, secy., Canadian Commercial Corp., 70 Lyon St., Ottawa, Ont., runway and drainage sys. at R. C. A. F. Station. Approx. $175,000. Plans deposit $25.

LOW BIDDERS

▲ Ill., Chicago—AIRPORT IMPRVS.—City, Higgins and LaGrange Rd., airport imprvs. at O'Hare Field, (a) Finger B of terminal and (b) paving, from J. M. Corbett Co., 2501 S. Salt St., Zone 8, $1,000,000. CD 8/25.

† Alaska, Kodiak—TAXIWAY, etc.—Yards & Docks Annex, Navy Dpt., Arlington, Va., project indefinitely postponed, new taxiway and exten. runway at Naval Air Station. CD 8/25.

CONTRACTS AWARDED

† Ill., Belleville—HOUSING—U. S. Eng., Merchandise Mart, Chicago, Zone 54, ten 2 story B unit each family quarters row houses, at Scott Air Force Base, Eng. 11-032-51-1, to McCarthy Bros. Constr. Co., 4903 Delmar Blvd., St. Louis, 3, Mo., $967,280. Bids 8/10. CD 8/16, under LB.

† Va., Langley Field—WIND TUNNEL ALTERATIONS—U. S. National Advisory Comn. for Aeronautics, Langley Field, wind tunnel alterations, Spec. L-3360, to Arthur G. Magher Co. Inc., 173 Christopher St., New York 14, N. Y., $537,700. Bids 9/15. CD 9/28, under LB.

LATIN AMERICA

Colombia—Colombian Govt., Bogota, awarded contract, c. conc. paving 4 kilometers road from Buenaventura to Cauca Valley between Buenaventura and Aguaclara; construct road between Aguaclara and El Queremal, incl. bridges, construct side road from El Queremal to El Saladito to Raymond Concrete Pile Corp., 140 Cedar St., New York, N. Y., U. S. A., $2,499,000.

Mexico—Pemex, Petroleos Mexicanos, Mexico City, will construct 225 mi. natural gas pipe line main between Monterrey and Torreon, by own forces. Approx. $3,375,000. CD 1/14/49.

Venezuela, Jusepin—Creole Petroleum Corp., Jusepin awarded contract gas plant expansion, to C. R. Brown & Co., 1000 S. Fremont Ave., Alhambra, Calif., U. S. A. Approx. $2,500,000.

PUBLIC BUILDINGS

BIDS ASKED

Ala., Opelika—CITY HALL, etc.—B.A. 10/10—City, joint city hall-jail-fire station, $250,000. Extended date. J. Paul Gilmore, Farm Security Bldg., Montgomery, archt.

† Colorado—GARAGE, etc.—B. A. 10/10—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Dener, Colo., furnishing, erecting 9 metal garages and bldgs., shop, for sub-stations at Greeley, Brighton, Holyoke, Brush, Sterling, Yuma, Oak Creek, Limon and Wiggins, Colorado-Big Thompson Proj., Spec. R7-151 (Region 7). L. N. McClellan, ch. engr.

Ga., Albany—HOUSING—B. A. 10/10—Albany Housing Auth., c/o Dennis & Dennis, archts., 409 N. Jefferson St., 125 housing units. Plans deposit $50.

▲ Ill., Chicago—APARTMENT—B.A. 10/10—Medical Center Comn., 736 S. Ashland St., Zone 12, brick, rein.-con. staff apartment, $1,100,000. Plans deposit $25. Skidmore, Owings & Merrill, 100 W. Monroe St., Zone 3, archts.

Ind., Frankfort—POWER PIPING—B.A. 10/10—City, power piping for municipal electric plant, $175,000. Plans deposit $10. Emery, Marker & Emery, 510 Toledo Trust Bldg., Toledo, O., engrs. CD 2/20/48.

Ind., Indianapolis—LABORATORY SCIENCE—B.A. 10/10—J. A. Franklin, vice-pres., Trustees of Indiana University, Bloomington, Laboratory Science bldg. alterations, imprvs. at Medical Center, 1040 W. Michigan St., Edward D. James, 122 E. Michigan St., archt. CD 7/15/49.

Ia., Red Oak—SCHOOL—B.A. 10/10—Bd. Educ., school, Bancroft and Jefferson Sts. CD 9/30/46.

▲ N. J., Passaic—HIGH SCHOOL—B.A. 10/10—Bd. Educ., 18 Belmont Ave., high school, Paulson Ave., $4,400,000. Extended date. CD 9/11.

▲ N. Y., Mineola—ADMINISTRATION—B.A. 10/10—Bd. Supervs, Nassau Co., Old Court House, administration bldg. at fairgrounds. $2,375,000.

Tenn., Knoxville—HOUSING—B.A. 10/10—Knoxville Housing Auth., c/o Bealer & Wilhoit, archts., Mercantile Bldg., Lomdale Homes Housing. Plans deposit $100. Extended date. CD 7/17.

Ont., Glencoe—SCHOOL—B.A. 10/10—Chas. H. Gillin, 284 Dundas St., London, one wing 60x320 ft., another wing 60x125 ft., brick, tile, steel frame T-shaped school for High School Area Bd., C. Davis, chn.; Wardsville. Approx. $400,000. Plans deposit $50.

† Colo., Denver—BUILDINGS, etc.—B.A. on or About 10/11—U. S. Eng., 1709 Jackson St., Omaha, Neb., buildings, appurtenances for Gunnery Range, near here. Spec. No. ENG 25-066-51-15.

▲ Colo., Pueblo—SENILE—B.A. 10/11—Colorado State Hospital, Pueblo, 6 story, full bsmnt., 120x332 ft., brick, concrete senile bldg. addn. at Colorado State Hospital, $1,100,000. Earl C. Morris, 518 Empire Bldg., and W. Gordon Jamieson & R. Ewing Stiffler, 818 12 St., archts. Walter D. Mordaunt, 738 Thatcher Bldg., Pueblo, engr. CD 8/9/49.

† D. C., Wash.—LABORATORY—B.A. 10/11—Pub. Wks. Office, Potomac River Naval Command, Naval Gun Factory, modernizing metal processing laboratory, Bldgs. 3 and 4, Spec. 2/5509.

Mass., Granville—SCHOOL—B.A. 10/11—Town School Bldg. Comm., Arthur Dowling, chn., West Granville, 1 story, bsmnt., 18x60x65 ft., steel, brick school, Beach Hill Rd., West Granville, $250,000. Plans deposit $12. Ralph M. Sizer, 10 Elm St., Westfield, archt.

N. C., Greensboro—TRADE, etc.—B. A. 10/11—A & T College, F. D. Bluford, pres., Greensboro, trade bldg., dairy plant. Plans deposit $25 general constr., $10 others. McMinn & Norfleet, 233½ Greene St., archts.

Pa., Clarks Summit—CHAPEL—B.A. 10/11—General State Auth., 18 and Herr Streets, Harrisburg, general contract heating, plumbing, electrical work chapel, recreation and auditorium bldg. at Clarks Summit State Hospital, $300,000 cost. Plans deposit $10 each contract. Von Storch & Pearce, 505 Spruce St., Scranton, Zone 3, archts. A. F. Jones, c/o owner, ch. engr. CD 12/21/49.

Pa., Clarks Summit—BUILDING—B.A. 10/11—General State Auth. 18 and Herr Sts., Harrisburg, general contract heating, plumbing, electrical work, elevators for bldg. for tubercular patients at Clarks Summit State Hospital, $800,000. Plans deposit $15 each contract. Von Storch & Pearce, 506 Spruce St., Scranton, Zone 3, archts. A. F. Jones, c/o owner, ch. engr. CD 9/29.

▲ Pa., Mayview—BUILDING—B. A. 10/11—General State Auth., 8 and Herr Sts., Harrisburg, general contract; heating; plumbing; electrical work; elevator for construction bldg. for female disturbed and semi-disturbed patients at Mayview State Hospital. $2,378,000. Plans deposit $25. Altenhof & Brown, 210 Grant St., Pittsburgh, archts. A. F. Jones, c/o owner, ch. engr. CD 11/28/49.

Ont., Ottawa—POWER PLANT—B. A. 10/11—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, power plant, Tunney's Pasture Development. Approx. $200,000. Plans deposit $100. G. Brault, c/o owner, engr.

B. C., Victoria—VETERANS PAVILLION—B.A. 10/11—Acting Secy., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., veterans pavilion at Victoria Hospital. Approx. $250,000. Plans deposit $25. G. Brault, c/o owner, archt.

† Idaho, Arco—OFFICE, etc.—B. A. 10/12—Westinghouse Electric Corp., Atomic Power Div., Box 1468, Pittsburgh, Pa., 13x155 ft. office and laboratory, 36x62 ft. gate house and office bldg., sewage treatment facilities, 180x80 ft. service bldg., 17x113 ft. pumphouse, oil storage tanks, etc. for testing facilities, Sub-contract 73-14-23. Plans deposit $250. CD 6/9, 6/9.

N. C., Snow Hill—SCHOOL—B.A. 10/12—Greene Co. Bd. Educ., B. L. Davis, Snow Hill, consolidated Negro High School. Plans deposit $25, general contract $15, mechanical contract. Wm. A. Colman & Assoc., Kinston, archts.

† Pa., Phila.—BUILDING—B.A. 10/12—General Services Admin., Custom House, Govt. Leased Bldg., alterations, addns., 128 N. Broad St. Approx $25,000.

† Tex., Texarkana—BOILER HOUSE—B.A. 10/12—U. S. Govt., Ordnance Corps, c/o Officer at Procurement, Red River Arsenal, Texarkana, masonry steel boiler house. Inv. No. E-41-117-51-2. $75,000.

† Wash., Seattle—LABORATORY—B.A. 10/12—U. S. Eng., 4735 E. Marginal Way, Zone 4, 2 story, bsmnt., 44x60 ft., rein.-con. laboratory on site of Veterans Admin. Hospital, CIVENG-45108-51-15. Approx. $150,000. CD 5/25, under LB.

Calif., Jackson—HOSPITAL—B.A. 10/13—Amador Co., Court House, 23-bed rein.-con. hospital. $350,000. Plans deposit $25. Geo. Sellon, Calif. State Life Bldg., Sacramento, archt. CD 11/7/49.

▲ Conn., Bridgeport—HOUSING—B.A. 10/13—City of Bridgeport Housing Auth., 262 Hallett St., low rent housing Charles F. Greene Homes, Lexington Ave. Sect. $3,500,000. Plans deposit $100. Harry G. Lindsay, 211 State St., archt. Bids 8/23 rejected. CD 8/31, under LB.

B. C., Vancouver—NURSES RESIDENCE—B.A. 10/13—L. N. Nickerneil, dir. Vancouver General Hospital, Vancouver, 2nd and 3rd units of nurses residence, each wing 8 story, rein.-con., Plans deposit $50. Townley & Matheson, 1576 Hornby St., archts. CD 8/29/47.

Ont., Kenora—SCHOOL—B.A. 10/13—Public School Bd., Miss B. Thomas, secy-treas., Kenora, 1 story, 105x245 ft., brick, cinder, concrete block school. Plans deposit $25. Shore & Moffatt, 79 Queen St., E. Toronto, archts. CD 1/13.

Ont., Meaford—HOSPITAL—B.A. 10/13—Meaford General Hospital, Meaford, 1 story, 26 bed structure with part bsmnt., T-shaped one wing 43x174 ft., other wing 43x80 ft., concrete bsmnt., brick hospital, concrete block fdn. Plans deposit $25. Shore & Moffatt, 79 Queen St. E., Toronto, archts.

Calif., Fresno—SCHOOL—B.A. 10/16—American Union Elementary School Dist., West and Springfield Aves., 18-classroom frame, stucco school, Marks and Adams Sts., near here. $450,000. Plans deposit $25. Wm. Hastrup, Anglo Bldg., archt. CD 7/13.

Ill., Moline—SCHOOL—B.A. 10/16—Bd. Educ., 1614 11 Ave., Benjamin Franklin School. Wm. F. Bernbrock, 1630 5 Ave., archt. CD 10/17/47.

▲ N. Y., Peekskill—HOUSING—B.A. 10/16—Housing Auth., Municipal Bldg., Main St., Dunbar Heights Housing Proj., N. Y. S.-47, $1,000,000. Plans deposit $50. Ralph H. Hopkins, 1001 Park St., archt. CD 6/16/49.

N. B., Moncton—HOSPITAL—B.A. 10/16—Dr. F. W. Porter, Moncton Hospital Bd., Moncton hospital. Plans deposit $50. Govan & Assocs., 17 Davenport Rd., Toronto, Ont., archts. CD 3/14/46.

† California—WAREHOUSE, etc.—B.A. 10/17—Bureau Reclamation Dpt. Interior, Box 525 Lindsay, warehouse and garage at Govt. Camp Lindsay, Central Valley Proj., Spec. R2-132.

Calif., Talmadge — ADMINISTRATION — B.A. 10/17 — State Div. Architecture, P. Wks. Bldg., Sacramento, general contract mechanical and electrical work rein.-con. administration bldg. at Mendocino State Hospital. Plans deposit $25. Anson Boyd, Sacramento, state archt. CD 10/11/43.

Mont., Helena—DWELLING—B.A. 10/17—Helena Housing Auth., Helena, 60 dwelling units addn., 1 maintenance bldg. addn. to administration bldg. at Stewart Homes, $600,000. S. L. Berg & L. O. Bradford, Helena, archts. CD 11/10/45.

Mont., Lewistown—HOME—B.A. 10/17—State Bd. Examiners, Helena. K-shaped state home for aged, $800,000. Extended date. J. G. Link & Co., 111 N. Montana St., Butte, archts. CD 8/23.

† Tenn., Memphis—CLASSROOMS—B. A. 10/17—At office Capt. W. T. Eckbe-g, Officer Charge of Construction, P. O. Box 365, Naval Base, Charleston, S. C., addnl. classrooms at Naval Reserve Training Center, NOY 23090, Spec. 25527, for Yards and Docks Annex, Navy Dpt., Arlington, Va. Plans deposit $5.

▲ Tex., Denton—DORMITORIES—B.A. 10/17—North Texas State College Denton, men's dormitory with dining hall, $550,000; 3 story women's dormitory with dining hall, $550,000. Bid date changed. Wilson & Patterson, Majestic Bldg., Fort Worth, archts. CD 9/13.

Tex., Eagle Lake—SCHOOL—B.A. 10/17—Consolidated Eagle Lake Independent School Dist., Eagle Lake elementary school and Negro School. $325,000. Plans deposit $25. Page, Southerland & Page, 602 West Ave., Austin, archts. CD 7/21.

† Newfoundland, Argentia—TRANSMITTER—B.A. 10/17—Dpt. of Navy, Bureau Yards & Docks, Wash. 25, D. C., 1 story, bsmnt., transmitter bldg., 1 story vehicle shelter, both rein.-con.; four 250 ft. high steel radiator towers with associated ground systems; and various rhombic and doublet antenna systems; plumbing, heating, ventilating, fire protection electrical work and exterior services at U. S. Naval Station. Plans deposit $40.

Tex., Denton—DORMITORIES—B.A. 10/18—North Texas State College, Denton, men's dormitory with dining hall, $400,000; 3 story women's dormitory with dining hall, $450,000. Wilson & Patterson, Majestic Bldg., Fort Worth, archts. CD 7/13.

Calif., Berkeley—SCHOOL—B.A. 10/19—Berkeley Bd. Educ., Rose and Walnut St., 3 story, rein.-con. Burbank Junior High School $760,000. Plans deposit $40. Miller & Warnecke, 407 Howard St., San Francisco, archts. CD 5/4/49.

LOW BIDDERS

Calif., Long Beach—SCHOOL—City Bd. Educ., 715 Locust Ave., Sept. 14, David Starr Jordan High School, from Thomas E. Norcross, 6053 Atlantic Ave., $674,310. CD 8/29.

▲ Calif., Los Angeles—ADMINISTRATION—Bd. Regents University of California, 405 Hilgard Ave., Sept. 15, 4 story, rein.-con. administration bldg., addn., from R. J. Daum Constr. Co., 6803 West Blvd., Inglewood, $1,298,254. CD 8/15.

▲ Calif., Los Angeles—SUPREME COURTS—Bd. Supervs. Los Angeles Co., 501 Hall of Records, general contract 12 story steel Superior Courts Bldg., from Peter Kiewit Sons Co., 345 Kieways Ave., Arcadia, $11,082,765***plumbing, from Scott Co., 1090 S. LaBrea Ave., $496,392***heating, ventilating, air conditioning work from Howe Bros., 1298 S. San Pedro St., $1,597,970***electrical work, from Newbery Electric Corp., 1038 Venice Blvd., $1,237,319*** elevator work and electric stairways, from Elevator Maintainance Co. Ltd., 1316 Glendale Blvd., $632,-617. CD 7/28.

▲ Calif., San Jose—HIGH SCHOOL—San Jose Unified School Dist., 498 Almaden St., Sept. 19, rein.-con., steel Senior High School, from Carl N. Swenson, Box 558, $2,633,000. CD 8/23.

† Colorado—POWER PLANT—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Sept. 20, 35,000 kva Pole Hill power plant, diversion and afterbay dams and access road, Estes Park-Foothills power aqueduct Colorado Big Thompson Proj., Spec. 3155, from Adler Constr. Co., Dickinson, N. D., $741,740, Est $775,732. CD 8/21.

Conn., Norwalk—SCHOOL—City, City Hall, 16 classroom, brick, steel, concrete school, Fillow St., from Edward E. Bray Co., River St., Bridgeport, $651,000. CD 9/7; Roosevelt and Rowayton Schools addns., from Gelfatly Constr. Co., 181 Sylvan Ave., Bridgeport, $291,820.

Ga., Newman—SCHOOL—City, Sept. 20, high school, from Batson-Cook Co., West Point, $668,942. CD 8/16.

▲ Md., Towson—DORMITORY—State, Dpt. P. Imprvts., 50n Park Ave., Baltimore, Zone 1, Sept. 7, dining hall and kitchen alterations, addn., 1 story, part bsmnt., 81x125 ft. brick, cinder block, steel new wing, concrete floors and brick, cinder block, steel, concrete men's and women's dormitories, State Teachers College, from John K. Ruff, Inc., 100 W. 22 St., Baltimore, Zone 18, $1,340,000. Francis J. Thuman, 211 E. Lexington St., Baltimore, Zone 2, archt. Kubitz & Koenig, 202 Emerson Tower, Baltimore, Zone 1, struct. engrs. Torsin, Wachter & Assoc., 1004 N. Charles St., Baltimore, mech. engrs. John B. Funk, 506 Park Ave., Baltimore, ch. engr.

▲ N. Y., Buffalo—HOUSING—Buffalo Municipal Housing Auth., City Hall, Sept. 15, housing, 7 bldgs., for 615 families, from John W. Cowper Co., Sidway Bldg., $4,413,400. CD 9/1.

▲ N. Y., Flushing—HOUSING—New York City Housing Auth., 63 Park Row, New York, Zone 7, Sept. 26, general contract, Pomonok Houses (Proj. No. NYC-22) in area bounded by 71 Ave., Kissena Blvd., 65 Ave., and Parsons Blvd., Queens Boro, from Bein, Wiliger & Fish, 25-20 41 Ave., Long Island City, $12,250,000***plumbing, from Lipsky & Rosenthal, Lexington Ave. and 115 St., New York, Zone 29, $1,497,000***heating and ventilating, from Jarcho Bros., Inc., 300 E. 45 St., New York, Zone 17, $1,-381,777***electrical work, from Herman H. Schwartz, Inc., 391 Fulton St., Brooklyn, $759,750. CD 9/14.

N. Y., Port Washington—SCHOOLS—Bd. Educ., Union Free School Dist. No. 4, Port Washington, rejected bids Sept. 14, 3 schools. $579,000. CD 8/13.

N. Y., Valley Stream—SCHOOL—Bd. Educ., Union Free School Dist. No. 24, Valley Stream, rejected bids Aug. 24, Wm. L. Buck School, Horton Ave. $725,000. CD 7/28.

N. C., Washington—SCHOOL—Washington City School Bd., E. A. West, secy., Sept. 15, general contract high school, from J. T. Hardison & Son, Washington, $593,593. CD 8/24.

▲ O., Columbus—SCHOOLS—S. O. Linzell, Ohio Public Works Dir., Columbus, Sept. 21, State School for Deaf on Wyandotte Golf Course Area Rathbone Rd. from Robert W. Setterlin & Sons Co., 1030 W. 3 Ave., $2,067,000, est. $1,884,745; State School for Blind on Wyandotte Golf Course along Rathbone Rd., from Haig M. Boyajonn & Assoc., 990 W. 3 Ave., $2,391,000, est. $1,636,200. CD 8/4.

Pa., Connellsville—HOUSING—Housing Auth., Connellsville rejected bids Aug. 30, 1 and 2 story, brick veneer 60 housing units, L. B. $827,000. CD 9/20, under LB.

Pa., Farrell—HOUSING—Housing Auth. of Mercer Co., 37 Spearman Ave., Sept. 21, 2 story, bsmnt., 100 unit brick veneer Steel City Terrace Housing, from Paul W. Glenn, Inc., S. Dock St., Sharon, $991,269. CD 8/24.

Pa., Mount Lebanon—SCHOOL—Bd. Educ., Mt. Lebanon Twp., 735 Washington Rd., Pittsburgh, Zone 16, Sept. 20, 1 and 2 story, 83x175 ft. and 61x205 ft., irregular T-shaped, brick on tile school, Moffett St., Mt. Lebanon Twp., near Pittsburgh, from B. Zambrano Co., 5814 Baum Blvd., Pittsburgh, $579,320. CD 9/12.

Tex., Hebbronville — SCHOOL — Jim Hog Independent School Dist., Hebbronville, Sept. 5, general contract, electrical work for school addns., remodeling, from Vaello Sales Co., Inc., Benevides, $509,699. CD 9/5.

Wis., Appleton—SCHOOL—Bd. Educ., Appleton, Sept. 15, general contract, Franklin School, from Hoffman Co., Inc., 1519 N. Oneida St., $829,000. CD 9/7.

N. B., Moncton—PUBLIC—Dept. P. Wks., Hunter Bldg., Ottawa, Ont., two bsmnt., 4 story 80x90 ft., and 95x100 ft., structural steel public bldg. addns., alterations, from E. G. Cape & Co., 620 Cathcart St., Montreal, Que. Approx. $990,000. CD 8/15.

CONTRACTS AWARDED

▲ † Ark., Shumaker (br. Camden)—ROCKET PLANT, etc.—Yards & Docks Navy Dpt., Arlington, Va., completing rocket plant, incl. production plant personnel buildings, storage, roads, railroad, grading, drainage, to Winson Bros. & Co., 1470 N. W. Bank Bldg., Minneapolis, Minn., C. F. Haglin & Sons Co., 123 Bryant Ave., Minneapolis, Minn., Missouri Valley Constructors, Leavenworth, Kan., and Sollitt Constr. Co., Inc., 302 Columbia St., South Bend, 24, Ind., $35,000,000.

Calif., Redondo Beach—SCHOOL—South Bay Union High School Dist., 501 Vincent St., Redondo Union High School addns. to R. J. Daum, 6803 West Blvd., Inglewood, $625,804. Est. $489,670. Bids 8/29. CD 9/8, under LB.

▲ Calif., San Francisco—HOUSING—San Francisco Housing Auth., 440 Turk St., North Beach Place Housing, incl. 229 units 13 three story, rein.-con. bldgs. to Leo Epp, 703 Market St., $1,140,877. Bids 9/20. CD 9/26, under LB.

Fla., Lake Worth—GENERATORS—City 2 diesel electric generators to Nordberg Mfg. Co., Atlanta, Ga., $679,761. Bids 8/21, awarded 9/21. CD 7/30.

La., New Orleans—SCHOOL—Orleans Parish School Bd., 703 Carondelet St., brick, tile Lakeview School, to Farnsworth & Chambers, Inc., P.O. Box 74, Houston, Tex., $712,000. Bids 8/24, awarded 9/20. CD 8/29, under LB.

Minn., Faribault—DORMITORY—State Dpt. Admin., State Capitol, general contract 3 dormitories, addns. and alterations to heating plant at State School and Colony, to F. O. Watson Co., 450 Baker Bldg., Minneapolis, $978,200. Bids 9/12. CD 9/20.

▲ **N. J., Hackensack**—SCHOOL—Bd. Educ., Hackensack, Bergen County Vocational School, Hackensack Ave. near Route 4, to A. A. LaFountain, Inc., 161 Beech Ave., $1,113,788. Bids 8/31, awarded 9/23. CD 9/6, under LB.

† **N. M., Shiprock**—POWER PLANT—Bureau Indian Affairs, Dpt. Interior, Interior Bldg., 19 and C Sts. N.W., Wash. 25, D. C., heating and power plant for the Navajo Indian Agency, to J. F. White Co., 2999 W. Colfax Ave., Denver, Colo., $677,506. Bids 7/26, awarded 8/28. CD 6/26.

N. Y., Fredonia—ADMINISTRATION—Dpt. P. Wks., State Office bldg., Albany, general contract administration classroom and library bldg. (Bldg. 1) for State Teachers College, to A. Friederich & Sons Co., 710 Lake Ave., Rochester, $833,973. CD 7/5, under LB.

▲ **N.Y., Potsdam**—AUDITORIUM, LIBRARY and CLASSROOM—Dpt. P. Wks., State Office Bldg., Albany, general contract auditorium, library, admin. and classroom bldg. (Bldg. 10) at State Teachers College, to Mutual Constr. Corp., 205 E. 42 St., New York, $1,424,340. CD 7/5, under LB.

N. Y., Waterloo—SCHOOL—Bd. Educ., Union Free School Dist. 1, Waterloo, general contract school, to J. Luther & Sons Co., 87 Stillson St., Rochester, Approx. $495,000. Bids 8/15. CD 8/11.

N. Y., Watertown—HOUSING—Watertown Municipal Housing Auth., 53 family garden apartments, to George Colon Contg. Corp., 103 E. 125 St., New York, Zone 35, $739,800. Bids 8/22. CD 8/11.

Pa., Doylestown—SCHOOL—Public School Bldg., Auth., 1400 N. Cameron St., Harrisburg, secondary school for Pennsbury Joint School Board, Lower Makefield Twp., to Bell Co. Broad Street Bank Bldg., Trenton 8, N. J., $858,700. Bids 8/21, awarded 9/26. CD 9/5.

▲ **Pa., Phila.**—HOUSING—Phila. Redevelopment Auth., 21 St. and Parkway, Fairmount Ave. Housing Development to United Building Constr. Co., 845 N. 19 St., $1,743,000. CD 9/21, under LB.

▲ **Tex., Houston**—COURT HOUSE, etc.—Harris Co., Court House, construct court house and jail bldg. and remodeling old court house to Manhattan Constr. Co., 2828 Pease St. $2,927,219 and $1,041,187 respectively, steel jail cells and blocks, to Southern Steel Co., P.O. Box 2021, San Antonio, $638,153. Bids 8/31. CD 9/8, under LB.

Utah, Salt Lake City—GYMNASIUM—Bd. Educ., 440 East 1st. South St., general contract, West High School Gymnasium, to Okland Constr. Co., 2683 Glenmare St., $521,300. Est. $400,000. CD 8/24.

W. Va., Shepherdstown—PHYSICAL EDUCATION—State Bd. Educ., 1 story, bsmt., 67'x157 ft. and 170'x175 ft., steel, brick physical education bldg., Shepherdstown College, to Harley Miller, Martinsburg, Approx. $470,000. CD 10/2/20/49.

COMMERCIAL BUILDINGS

BIDS ASKED

▲ **Pa., Phila.**—HOSPITAL—B.A. 10/10—Bryn Mawr Hospital, Bryn Mawr, hospital addn. and nurses dormitory, $1,800,000. Schmidt, Garden & Erickson, 104 S. Michigan Ave., Chicago, Ill., archts.

Pa., Phila.—CHAPEL, MUSIC HALL—B. A. 10/10—Eastern Baptist Theological Seminary, City Line and Lancaster Ave., memorial chapel and music hall, $350,000. Wm. H. Lee, 16 S. Broad St., archt. Charles H. Wolf, 112 S. 16 St., engr. CD 11/28/45.

▲ **Ont., Toronto**—COMMUNITY CENTER—B.A. 10/10—Jewish Community Centre Com., 742 Spadina Ave., 2 story, bsmt., 174x179 ft. rein.-con. community center, with auditorium, $1,000,000. Page & Steele, 42 St. Clair Ave. W. and Kaplan & Sprachman, 305 Dundas St. W., archts. CD 3/17.

D. C., Wash.—OFFICE, etc.—B.A. 10/11—Holabird, Root & Burgee, archts., 180 N. Wabash Ave., Chicago, Ill., national headquarters office bldg. and garage, for International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America, 2221 E. Michigan St., Indianapolis, Ind. Approx. $400,000. CD 9/20.

Mich., Albion—HOSPITAL—B.A. 10/11—Sheldon Memorial Hospital, John P. Bentley, City Hall, 3 story, brick, steel hospital addn. and new boiler plant. Plans deposit $25. Smith Hinchman & Grylls, 800 Marquette Bldg., Detroit, archts. CD 12/23/49.

▲ **N. M., Albuquerque**—HOSPITAL—B. A. 10/15—Bataan Memorial Methodist Hospital, 1621 E. Central Ave., 115-bed masonry, steel hospital, con. cassion pier frame, $1,494,350. Meem, Zeiger, Holien & Meem, P. O. Box 628, Santa Fe, archts. CD 9/20.

▲ **Tex., Dallas**—OFFICE—B.A. 10/16—Gibraltar Insurance Co., 417 N. Ervay St., 20 story bsmt. office, $1,500,000. Plans deposit $50. Thomas Jamieson & Merrill, 820 N. Harwood St., archts. CD 12/28/49.

▲ **Calif., Los Angeles**—MATERNITY and PEDIATRICS—B.A. 10/17—Cedars of Lebanon Hospital, 4833 Fountain Ave., (selected list bidders) 5 story, 125 bed, steel, concrete maternity and pediatrics bldg. Approx. $1,000,000. Skidmore, Owings & Merrill, 1 Montgomery St., San Francisco, archts. CD 4/3.

Nev., Reno—OFFICE—B.A. 10/17—Owner c/o Paul C. Overmire, archt., 79 Post St., San Francisco, Calif., 4 story, bsmt., rein.-con., steel commercial office bldg., air-conditioning $500,000. Plans deposit $25. Hyman Rosenthal, 617 Montgomery St., San Francisco, Calif., engr.

Pa., Allentown—BANK—B. A. 10/17—Tilghman Moyer Co., 530 Hamilton St., bank bldg. alterations, addn. for Second National Bank, S. Center Square, $400,000.

Mich., Grand Rapids—HOSPITAL—B.A. 10/31—Blodgett Memorial Hospital, H. B. Tuthill, pres. Bd. Trustees, 1840 Wealthy S. E., brick, steel hospital addn. $250,000. Plans deposit $20, Lewis J. Sarvis, 258 Champion St., Battle Creek, archt.

Mass., South Boston—OFFICE—Bids Asked—Recording & Statistical Corp., 180 Essex St., Boston, 2 story, 20'x160 ft., rein.-con. office, $375,000. Maurice A. Reidy, 101 Tremont St., Boston, archt.

N. J., Princeton—ADMINISTRATION—Bids Asked—Princeton University, Princeton, (selected list bidders) Pyne School Administration Bldg. $250,000. Voorhees, Walker, Foley & Smith, 101 Park Ave., New York, N. Y., archts.

Tex., Houston—SHOPPING CENTER—Bids Asked—Braeswood Building & Development Co., c/o Dixon & Greenwood, archts., 2265 Bellaire Blvd., superstructures for 1 and 2 story 100x750 ft. brick, hollow tile shopping center, $475,000. CD 8/18.

SOON LETS CONTRACT

Ill., Chicago—MISSION—Mission of Our Lady of Mercy, 1140 W. Jackson St., Zone 7, soon lets contract 3 story, 55x155 ft., steel, brick, concrete, stone mission addn., 1 story 60x1000 ft., gymnasium $850,000. Barry & Kay, 53 W. Jackson St., Zone 4, archts.

▲ **Mass., Andover**—GYMNASIUM—Phillips Academy, Salem St., soon lets contract, memorial gymnasium, $1,000,000. Eggers & Higgins, 100 E. 42 St., New York 17, N. Y., archts. CD 12/19/49.

▲ **Pa., Phila.**—APARTMENT—Oscar G. Stonorov, archt., Broad St. Station Bldg., soon lets contract, apartment development, Mermaid Lane, etc., for Mr. and Mrs. Donald D. Dodge, 32 Summit St., $3,000,000. CD 11/1/49.

LOW BIDDERS

Ga., Columbus—CHURCH—St. Paul Methodist Church, c/o James J. W. Biggers & Assocs., archts., Flowers Bldg., Sept. 22, church from Williams Constr. Co., P. O. Box 1037, $614,500. CD 9/22.

Idaho, Boise—HOSPITAL—St. Alphonsus Hospital, 412 State St., Sept. 21, general contract 3 story hospital addn., from Jordan & Sons, 406 S. 6 St., $566,720. CD 9/22.

▲ **Ill., Chicago**—APARTMENT—Harris Perlstein & Assoc., c/o Loebl Schlossman & Bennett, archts., 333 N. Michigan St., Zone 1, project abandoned, 258 unit apartment C. A. $2,500,000. CD 6/13, under CA.

Mo., St. Louis—OFFICE—American Red Cross, c/o John F. Wilson, mgr., Midwestern Area, 1709 Washington Ave., Zone 3, Sept. 7, 6 story, bsmt., 99x125 ft., brick, rein.-con., stone office, 4050 Lindell Blvd., from Dickie Constr. Co., 520 Louderman Bldg., 317 N. 11 St., Zone 1, $577,869; heating and air-conditioning from Sudenga Heat & Power Co., 2306 Delmar Blvd., Zone 6, $274,843. CD 8/30.

N. C., Durham—DORMITORY—Duke University, S. W. Myatt, bus. mgr., Sept. 20, graduate men's dormitory, from Wm. Muirhead Constr. Co., Durham, $981,800. CD 9/18.

Nev., Reno—HOSPITAL—St. Mary's Hospital, c/o L. A. Ferris & G. Erskins, archts., 527 LaRue St., Reno, rejected bids, 3 story, bsmt., 40 bed, rein.-con., steel hospital addn., L. B. $649,729. CD 9/19, under LB.

▲ **Ore., Portland**—HOSPITAL—Good Samaritan Hospital, 22nd N. W. Marshall St., 7 story, rein.-con. hospital wing, from Ross B. Hammond Co., 1241 Williams St., $1,391,810. CD 8/29.

CONTRACTS AWARDED

Calif., Los Angeles—DWELLINGS—Le Sage Development Co., 424 S. Beverly Dr., Beverly Hills, 72 frame, stucco dwellings, Sherman Way, Louise St., Eucalyptus Way, Hart St. Owner builds, $575,600. Wm. Bray, 321 S. Bentley Ave., archt.

▲ **Calif., San Francisco**—STORE, etc.—Sears, Roebuck & Co., Mission and Army Sts., 3 story, rein.-con. store with parking area on roof, 2 escalators, air conditioning, to Barrett & Hilp, 918 Harrison St., general work $1,800,000, foundation $150,000. CD 9/15, under LB.

▲ **Ill., Chicago**—RESIDENCES—Thos. A. Catino & Co., 3258 N. New Castle St., Zone 34, 152 unit residences, 4200 N. Central Ave., Zone 34. Owner builds. $1,850,000. Awarded 9/22. Otto Monberg, 3306 N. Newland St., Zone 34, archt.

▲ **Ill., Chicago**—RESIDENCES—Crane & Moreland, 6248 S. Central St., Zone 38, 400 residences 6S and Oak Park Ave., Owner builds. $3,500,000. Awarded 9/20. M. J. McCarthy, 6224 S. Claremond St., Zone 36, archt.

Ill., Chicago—STORE—J. C. Penney Co., Belmont and Parkside Sts., Zone 34, 22,250 sq. ft., steel, concrete masonry store, to Inland Constr. Co., 134 N. La Salle St., Zone 2, $500,000. Awarded 9/18. Adelman & Ehrlich, 936 N. Michigan St., Zone 11, archts.

▲ **Ill., Villa Park**—RESIDENCES—Villa Homes, Inc., North Ave. and Villa St., 100 residences, Owner builds, $1,000,000. Awarded 9/22.

▲ **Kan., Dodge City**—SCHOOL, etc.—St. Mary of the Plains School and College, Dodge City, school and college to McCarthy Bros. Constr. Co., 4903 Delmar Blvd., St. Louis, Mo., $2,000,000, Maguio & Quick, 4908 Delmar Blvd., St. Louis, Mo., archts.

▲ **Ky., Fort Campbell**—HOUSING—Dpt. Army, Second Army, Fort Meade, construct, manage and finance 400 housing units, to Algernon Blair, Box 749, Montgomery, Ala., $3,000,000. CD 11/18/49.

La., New Orleans—HOMES—Norman Bros., 109 Finland Pl., 114 homes. Owner builds. $500,000.

Mass., Marblehead—RESIDENCES—Victor Traeger, 606 Main St., Malden, 52 residences, Owner builds, $900,000. CD 9/5.

▲ **N. J., East Paterson**—SHOPPING CENTER—Elmwood Stores, Inc., Broadway, Elmwood shopping center a 10-block development stores and office tower bldg., to Ferber Co., 16 Johnson Ave., Hackensack, Approx. $3,900,000. Kelly & Gruzen, 921 Bergen Ave., Jersey City, archts. and engrs.

N. Y., Freeport—APARTMENT—George B. Rabinor, c/o J. J. Gloster & Sons, archts., 225 W. 57 St., New York, Zone 19, 3 story garden apartment, Ocean Ave. and Smith St. Owner builds. $500,000.

N. Y., Bronxville—EDUCATIONAL—Concordia Collegiate Institute, 171 White Plains Rd., library and science building to Barr, Gleason & Barr, 145 E. 32 St., New York, Zone 16, Approx. $500,000. Bids 8/22. CD 8/4.

▲ **N. Y., Kingston**—HOSPITAL—Our Lady of Victory Sanitorium, Kingston, hospital addn., to Vermilya-Brown Co., Inc., 100 E. 42 St., New York, Zone 17, Approx. $1,500,000. Bids 6/14, awarded 8/21. CD 5/31.

▲ **O., Mansfield**—OFFICE—Lumbermen's Mutual Insurance Co., 2 story, brick office bldg. of Georgia Colonial design, Lumbermen's Heights, northwest of here, to Frank Beymer, Mansfield, approx. $1,000,000. CD 9/22.

▲ **Pa., Abington**—RESIDENCES—Carl Metz, 1614 E. Upsal St., Phila., residential development, Meetinghouse Rd., separate contracts. $5,850,000.

▲ **Pa., Phila.**—RESIDENCES—Boardman Smith Corp., 1322 W. Airdrie St., residential development, Pennhurst Sts., etc., $1,000,000, G. Harold Murphy, 1621 Sellers St., archt., residential development, S. and Fairhill Sts., $250,000, Shelly Shelkin Rochlis, 721 Walnut St., archt., separate contracts.

Pa., Phila.—RESIDENCES—Powell Elkins Corp., 8020 York Rd., Elkins Park, residential development, Cedarbrook and Pickering Sts., separate contracts. Approx. $500,000. Louis J. Cowan, 1505 Pine St., archt.

Pa., Upper Darby—OFFICE—Bell Telephone Co. of Pennsylvania, 18 and Arch Sts., Phila., office to Joseph R. Farrell, Inc., 4424 Market St., Phila., $500,000. Bids 8/15. CD 8/23, under LB.

Tex., Dallas—SHOPPING VILLAGE—S. & E. Corporation, Box 2349, addnl. unit shopping village, Pleasant Grove on Bockner Blvd. Owner builds. $400,000. Consolidated Architects & Engineers, 1005 Ft. Worth Natl. Bank Bldg., Ft. Worth, archts. and engrs. CD 8/24/49.

Tex., Fort Worth—SCIENCE—Texas Christian University, Fort Worth, general contract 3 story science bldg., to McCann Constr. Co., 1813 E. Lancaster St., $733,013. Bids 9/15. CD 9/21, under LB.

Tex., Houston—SHOPPING CENTER—Miles Strickland, 2nd National Bank Bldg., (2nd unit) shopping center, near Bellair. Owner builds. $550,000. Dunaway & Jones, 4919 Montrose St., archts. CD 5/2.

Tex., Houston—DWELLINGS—Bennie Strickland, 3402 Sunset Blvd., 100 frame type dwellings. Owner builds. $575,000. CD 9/20.

Tex., Houston—DWELLINGS—Steele-Miller, Inc., c/o Timberwilde Subdivision Office, Houston, 50 semi-fireproof type dwellings in Timberwilde in Memorial Dr. Section. Owner builds. $450,000.

Tex., Waco—STORE—Sears-Roebuck & Co., 1409 S. Lamar St., Dallas, and c/o Phil E. Teeling, Liberty Bldg., 2 story store, to W. S. Bellows Constr. Co., 7707 Hartford St., Houston, Approx. $875,000. CD 9/14.

Alta., Edmonton—APARTMENT—Sherwin Constr. Ltd., 10927 76 Ave., five 43x150 ft. frame, stucco, brick apartments. Owner builds, $525,000. Awarded 9/19. CD 4/10.

▲ **Ont., Ottawa**—HOSPITAL—Grey Nuns of the Cross, Sussex St., 7 story 167x284 ft., rein.-con., stone Ottawa General Hospital addn., Parent St. between Bruyer and Cathcart Sts., to Collet Frees Ltd., 1978 Parthenais St., Montreal, Que. Approx. $2,400,000. CD 7/27.

INDUSTRIAL BUILDINGS

BIDS ASKED

N. J., Camden—SALES and SERVICE—B.A. After 9/28—Radey & MacNelly, archts. and engrs., 8 and Market Sts., sales and service bldg., for Admiral Wilson Realty Co., c/o Rohrer Chevrolte Co., Bridge Blvd. Approx. $68,000.

Va., Norfolk—PLANT—B.A. 10/11—Swift & Co., Union Stockyards, Chicago, Ill., 165x320 ft. storage plant.

O., Elyria—FACTORY—Bids Asked—Richard M. Timms, pres. Troxel Mfg. Co., Troxel Bldg., 1 story modern factory, Oberlin Rd. at city limits, $500,000.

Pa., Lancaster—MANUFACTURING, etc.—Bids Asked—Lancaster Pump & Mfg., Co., 118 W. Chestnut St., Phila., 1 story masonry mfg bldg., display and office bldg. Approx $68,000. *The Ballinger Co.*, 121 N. Broad St., Phila., archt.

Tex., Houston—BAKERY—Bids Asked—J. Weingarten, Inc., 808 Prairie St., bakery. $175,000. Finger & Rustay, 711 Natl. Standard Bldg., archts. CD 9/19.

Ont., Ottawa—PLANT—Bids Asked—R. L. Crain Ltd., Richmond Rd., 2 story plant addns. to head office. Approx $500,000.

SOON LETS CONTRACT

Ill., Chicago—FACTORY—Standard Brands, Inc., 1015 S. Independence St., soon lets contract, 1 story, brick, steel concrete factory $500,000. A. Epstein & Sons, 2011 W. Pershing Rd., Chicago, engrs.

CONTRACTS AWARDED

▲ Calif., San Bernardino—PLANT—California Electric Power Co., 3771 8 St., Riverside, design and construction 60,000-kv steam-electric generating plant, to Fluor Corp. Ltd., Box 7030, Los Angeles, Zone 22, $8,000,000.

Ill., Broadview—SHOP—Production Tool Co., Pushek & Harrison Sts., design and construction, 160x300 ft., 80 ft. high, 48,000 sq. ft., steel, brick shop, to Abell-Howe Co., 53 W. Jackson St., Chicago, Zone 4, $500,000. Awarded 9/18.

▲ Ill., Chicago—PLANT—National Biscuit Co., 75 and Keddie Sts., Zone 29, 2 story, 700x1150 ft. baking plant and 135 ft. storage silos, to Rapner Benson, Inc., 4744 W. Rice St., Zone 51, $12,000,000. Bids 8/22, awarded 9/18. CD 8/4.

▲ Ind., East Chicago—MILL—Inland Steel Co., Michigan Ave. and Lake front (2nd unit), steel mill addns., separate contracts, $20,000,000.

▲ Ind., Michigan City—CHEMICAL PLANT—American Cynamid Co., 30 Rockefeller Plaza, New York N. Y., chemical plant incl. 140x190 ft. process bldg., 50 ft. high, 1 story, 42x133 ft. warehouse and machine shop, 2 story 41x72 ft. admin. bldg., 1 story, 37x60 ft., brick, steel, concrete change house, to Tonn & Blank, 104 N. Franklin St., Michigan City, Approx. $3,000,000. Awarded 9/18. CD 8/23, under CA.

Ia., Sioux City—WAREHOUSE—Tolerton & Warfield Co., 3 and Nebraska Sts., general contract, warehouse, to H. S. Holtze Constr. Co., 2121 E. 4 St.,*** plumbing and heating, to W. J. Hagan Co., 507 Pearl St.,***wiring, to Thompson Electric Co., 721 1 St., approx. $900,000.

Minn., St. Paul—FACTORY—American Can Co., 747 N. Prior Ave., general contract 1 story, part basmt., 375x300 ft., concrete, steel, brick factory bldg., also garage, at site, to Turner Constr. Co., Graybar Bldg., New York N. Y., $600,000. CD 9/29/44.

Okla., Oklahoma City—SHOPS, etc.—Oklahoma Natural Gas Co., 401 N. Harvey St., shops, garage, pipe yard, meter shop and offices, to Frederickson-Pares Co., 4325 N. Western St. Approx. $800,000. Awarded 9/20. Geo. Boydson, O. N. G. Bldg., Zone 2, engr. CD 12/30/49.

▲ Va., Danville—MILL—Dan River Mills, Inc., Danville, 5 story cotton finishing mill, to United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa. Approx. $3,500,000.

UNCLASSIFIED

BIDS ASKED

Ont., Rockcliffe (Postal Dist. Ottawa)—POWER DISTRIBUTION SYSTEM, etc.—B.A. 10/10—A. J. E. Smith, engr., 395 W. Fleet St., Toronto, power distr. sys., street lighting, for Govt. of Canada, Dpt. National Defense (Air), Cartier Sq., Ottawa. Plans deposit $10.

La., Jeanerette—STADIUM—B.A. 10/11—Iberia Parish School Bd., New Iberia, athletic stadium, $75,000. Extended date. Nolan, Norman & Nolan, Queen and Crescent Bldg., New Orleans, archts. CD 9/22.

Md., Baltimore—ATHLETIC FIELD, etc.—B.A. 10/11 City Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, athletic field grandstand and admin. offices, $650,000. Plans deposit $25. Saxe, Williar & Robertsen, 130 W. Hamilton St., engr. design Andre Merle, 1301 Massachusetts Ave. N. W., Wash., D. C., mech. & elec. engr. CD 8/14.

Oregon—RURAL DISTRIBUTION LINES—B.A. 10/12—Benton-Lincoln Electric Co-operative, 561 Van Buren St., Corvallis, 58.29 mi. 7.2-12.5 kv. rural distr. lines, Lane, Linn and Benton Counties. Plans deposit $10. James A. Brigman, 561 Van Buren St., Corvallis, engr. CD 11/24/44.

Wash., Ellensburg—SWIMMING POOL, etc.—B.A. 10/12—City, City Hall, swimming pool and bathhouse, $70,000. Plans deposit $25. J. W. Maloney & J. H. Whitney, Larson Bldg., Yakima, archts. G. D. Hall & Assocs., Larson Bldg., Yakima, engrs.

† Wyoming—STRUCTURAL STEEL—B.A. 10/13—Bureau Reclamation, Dpt. Interior, Casper, structural steel for Seminoe power plant addns., Kendrick Proj., Spec. R7-158, L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

† North Dakota—SUB-STATIONS—B.A. 10/17—Bureau Reclamation, Dpt. Interior, Bismarck, Carrington, Edgeley and Forman sub-stations, Missouri River Basin Proj. Transmission Div. Spec. R6-48 (Region 6). Extended date. CD 8/29.

† North Dakota—SUB-STATIONS—B.A. 10/17—Bureau Reclamation, Dpt. Interior, Bismarck, construct Leeds, Bisbee, and Rolla sub-stations, Missouri Basin Proj., Transmission Div. Spec. R6-49 (Region 6). Extended date. CD 9/15.

California—TRAFFIC SIGNAL SYSTEMS—B.A. 10/18—State Div. Hys., P. Wks. Bldg., Sacramento, traffic signal systems hy. lighting and channelization at Alemany and Skyline Blvds., and at Alemany and Junipero Sierra Blvds., San Mateo Co. G. T. McCoy, Sacramento, state hy. engr.

Tex., Brownsville—BARGE DOCK—B.A. 10/18—Brownsville Navigation Dist., Brownsville, barge dock. Approx. $75,000. Plans deposit $25. W. H. Flynn, Jr., Brownsville, engr. CD 5/19.

† California—TRANSMISSION LINE—B.A. 10/19—Bureau Reclamation, Dpt. Interior, Elverta, constr. Tracy-Contra Costa 69-kilovolt transmission line, Central Valley Proj., near Tracy Spec. 3191. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

Texas—GAS LINES—Bids Asked—Sunray Oil Co. & Associated Operators, Philtower Bldg., Tulsa, Okla., 130 mi. 4- to 10-in. low-pressure gas gathering lines, area of Snyder, $875,000.

LOW BIDDERS

▲ Ill., Chicago—PARK IMPRVS.—Chicago Park Dist., 425 E. 14 St., Zone 5, Outer Drive extens. from Foster to Ardmore Aves., from Great Lake Dredge & Dock Co., 122 S. Michigan St., Zone 3, $3,129,-531. CD 6/11/45.

† New Mexico—TRANSFORMERS—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Sept. 19, one 13,000/16,250 kva transformer with three 46,000 volt lightning arresters for Albuquerque Sub-station, Rio Grande Proj., Spec. 3144, from Westinghouse Electric Corp., G & E Bldg., Denver, Colo., $114,485.

† Oregon—SHOEFLY TRACK—U. S. Eng., Pittock Block, Portland, Sept. 20, shoefly track on Southern Pacific R. R. line 12 mi. upstream from Lowell, Lane Co., CIVENG 35-026-51-26, from Utah Constr. Co., Box 1549, Richmond, Calif., $199,463. Est. $120,450.

Newfoundland, Bonavista—WHARF—Govt. of Canada, Hunter Bldg., Ottawa, Ont., wharf, from North Shore Constr. Co., Ltd., 1410 Stanley St., Montreal, Que., $184,769.

CONTRACTS AWARDED

Ala., Mobile—CONVEYOR SYSTEM—Alabama State Dpt. Docks & Terminals, c/o contractor, conveyor sys., to Rust Eng. Co., Exchange Bldg., Birmingham, $745,-000. Bids 8/25. CD 8/29, under LB.

▲ Calif., Los Angeles—UNDERGROUND GARAGE—Recreation & Parks Comn., City Hall, accepted offer to construct and operate underground parking garage under Pershing Square to The City Park Garage Co., (composed of Morrison-Knudsen Co., Inc., 411 W. 5 St., Ford J. Twaits Co., 449 S. Beaudry St., and Stiles Clement, Van Nuys Bldg.) 449 S. Beaudry St., Est. $5,000,000. Ordinance accepting offer became effective Sept. 21. CD 6/4/50.

Kansas—RURAL DISTRIBUTION LINES—Co-operative Electric Power & Light Co., Iola, 96.9 mi. rural distr. lines and 31.75 mi. conversion, in Coffey, Anderson, Woodson, Allen and Neosho Counties, to Pendleton Constr. Co., Leonhardt Bldg., Oklahoma City, Okla., $151,652. Bids 9/11. CD 8/16.

▲ N. Y., Jones Beach—MARINE STADIUM—Jones Beach State Parkway Auth., Belmont Lake State Park, Babylon, superstructure for Marine Stadium at Jones Beach State Park, to Grove, Shepherd, Wilson & Kruge, Inc., 247 Park Ave., New York, $1,897,403. Bids 7/24. CD 7/26, under LB.

North Dakota—RURAL DISTRIBUTION LINES—Mor-Gran-Sou Electric Co-operative, Inc., Flasher, 483.53 mi. rural distr. lines and sys. improv., Morton Co., to Center Constr. Co., Center, $448,562. CD 6/2.

Oklahoma—RURAL DISTRIBUTION LINES—Cookson Hills Electric Co-operative, Inc., Stigler, 320.25 mi. rural distr. line and sys. improv., Haskel Co., to Stuart C. Irby Constr. Co., 815 S. State St., Jackson, Miss., $454,880. George C. Hengy & Co., 1007½ Texas Ave., Shreveport, La., engrs. CD 5/25.

† Oregon—INSTALLATION—U. S. Eng., Pittock Block, Portland, installation to Carl M. Halvorson, Builders Exchange Bldg., Portland, $593,959. Awarded 8/26.

Ore., Baker—POOL, etc.—School Dist. 5, constr. pool and bathhouse at high school, to Pacific Constr. Co., 213 E. Reserve, Vancouver, Wash., $104,500. Awarded 9/21. CD 5/22, under Public Bldgs.

South Dakota—RURAL DISTRIBUTION LINES—Codington-Clark Electric Co-operative, Inc., Watertown, 249.6 mi. rural distr. lines and 6.27 mi. of electric transmission line, Clark Co., to Mork Hardware & Electric Co., Clarkfield, Minn., $322,799. CD 10/22/48.

▲ Quebec and Labrador — RAILWAY — Quebec North Shore & Labrador Railway Co., 360 St. James St. W. Montreal, Que., and Seven Islands, Que., 360 mi. railway from Seven Islands, Que. to Ungava Ore Fields, Labrador, to Fred Mannix & Co., Ltd., Vancouver, B. C., Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, U. S. A. and McNamara Constr. Co., Ltd., 42 Industrial St., Leaside, Ont. Approx. $70,000,000. CD 9/26, under LB.

Proposal Advertisements see pp. 93 to 97

OFFICIAL PROPOSALS

Bids: October 26, 1950 (111)

Sewers, Manholes & Misc. Appurtenances

Sealed proposals for furnishing all labor and materials for the construction of approximately 43,930 lineal feet of 8", 10" and 12" sanitary sewers, manholes and miscellaneous appurtenances together with approximately 1,400 lineal feet of 6" cast iron force main, a sewage pumping station and a sewage measuring device to be constructed in the Township of Abington, Montgomery County, Pennsylvania, will be received by the Secretary of the Commissioners of the Township of Abington, at the Township Office, York Road and Horace Avenue, Abington, Pennsylvania, up to 7:30 o'clock P.M., Eastern Standard Time, and will be publicly opened at 8:00 o'clock P.M., Eastern Standard Time on

THURSDAY, OCTOBER 19, 1950

The work will be divided into six contracts designated as:

CONTRACT NO. 19: Branch sewers and cast iron force main in the Abington Village Area, Abington Township Ward No. 1, consisting of approximately 21,600 lineal feet of 8" and 10" sanitary sewers, and approximately 1,400 lineal feet of 6" cast iron force main.

CONTRACT NO. 20: Sewage pumping station in the Abington Village Area, Abington Township Ward No. 1.

CONTRACT NO. 21: Branch sewers in the Meeting House Road Area, Abington Township Ward No. 4, consisting of approximately 8,380 lineal feet of 8", 10" and 12" sanitary sewers, together with one sewage measuring device.

CONTRACT NO. 22: Branch and intercepting sewers in the Glenside Gardens Area, Abington Township Wards No. 11 and 7, consisting of approximately 8,600 lineal feet of 8", 10" and 12" sanitary sewers.

CONTRACT NO. 23: Branch sewers in the North Hills and Edsley Areas, Abington Township Wards No. 6 and 9, consisting of approximately 13,600 lineal feet of 8" and 10" sanitary sewers.

CONTRACT NO. 24: Branch sewers in the Roslyn Area, Abington Township Ward No. 8, consisting of approximately 850 lineal feet of 12" sanitary sewers.

Information for Bidders, Form of Bid, Specifications and Form of Contract may be examined at the Township Office or at the office of Albright & Friel Inc., Consulting Engineers, 121 South Broad Street, Philadelphia 7, Pennsylvania, and copies thereof may be obtained at either office, upon a deposit of $15.00 for each set of documents for each contract. If the documents are returned in good condition within five days after the opening of bids, the full amount of the deposit for one set of each contract will be returned to each actual bidder and other deposits will be refunded with a deduction of $7.50 for each set of each contract returned to defray the actual cost of reproduction. If the documents are not returned within the time stated, the entire amount of deposit will be forfeited.

A certified check or bid bond drawn to the order of the Township of Abington, equal to five per cent of the amount of bid must be submitted with the proposals.

Contractors may submit bids on any or all contracts.

The proposal must be sealed and marked "SEALED PROPOSALS FOR CONSTRUCTION OF SANITARY SEWERS—CONTRACT NO. 19 and/or 20 and/or 21 and/or 22 and/or 23 and/or 24 addressed to the Commissioners of the Township of Abington, c/o Mr. E. Raymond Ambler, Secretary.

The Board reserves the right to reject any and/or all bids.

No bid may be withdrawn within thirty (30) days after the actual date of the opening thereof.

E. RAYMOND AMBLER
SECRETARY

SEPTEMBER 28, 1950

(Continued on page 94)

OFFICIAL PROPOSALS

RATE: THE RATE FOR OFFICIAL PROPOSAL ADVERTISING IS $1.00 PER LINE (OR FRACTION) PER INSERTION.

COPY RECEIVED UP TO 3:00 P. M. FRIDAY FOR ISSUE OUT FOLLOWING THURSDAY SUBJECT TO SPACE OPEN FOR LAST MINUTE ADS

SEND COPY TO OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

(Continued from page 93)

Bids: October 26, 1950 (991)

County Stadium

MILWAUKEE COUNTY PARK COMMISSION
ROOM 308, COURT HOUSE
MILWAUKEE, WISCONSIN
OFFICIAL NOTICE

Sealed bids will be received at the office of the Milwaukee County Park Commission, Room 308, Court House, Milwaukee, Wisconsin until 10:00 a.m., Thursday, October 26, 1950, to be opened in the County Board Committee room before the Highway Committee of the County Board of Supervisors and the Milwaukee County Park Commission, for furnishing labor, material, and equipment and constructing the piling and foundations, and the main structure of the County Stadium. The fabrication, delivery, and erection of the main portion of the structural steel required has already been contracted for by the Milwaukee County Park Commission.

Proposal for the work contemplated will be set up as follows:

Unit 1—Piling and foundations
Unit 2—General contract for stadium structure
Unit 3—Combined bid on Item 1 and Item 2

Bidders may submit bids on Item 1 or Item 2 or on Items 1 and 2 combined with the County reserving the right to accept any bid or combination of bids deemed most advantageous to the County.

Approximate quantities of the principal items under Unit 1, Piling and Foundations, are as follows:

90,000 lineal feet of piling
1,800 cu. yds. of concrete
50 tons of reinforcing steel

Approximate quantities of the principal items under Unit 2, General Contract for Stadium Structure, are as follows:

6,400 cu. yds. of concrete
420 tons of reinforcing steel
1,220 squares metal roof deck and roofing
300 squares aluminum siding
20,000 sq. ft. wire mesh
12,000 lin. ft. railing
550 M brick
110 M glazed tile
3,200 lin. ft. stone trim
6,000 sq. ft. corrugated glass
320 plumbing fixtures
4 electric vaults with equipment
500 lamps-field lighting stadium

All work to be done in accordance with plans and specifications, which will be available at the Milwaukee County Regional Planning Department, Room 302 Court House, after September 28, 1950. A deposit of $10.00 shall be required for each set of piling and foundation plans taken from the office, and a deposit of $50.00 shall be required for each set of general structure plans taken from the office. The deposit shall be refunded if all plans and specifications are returned in good condition not later than ten (10) days after the opening of proposals.

The right is reserved to reject any or all bids or to accept any bid or combination of bids deemed most advantageous to Milwaukee County or to waive any informality in the bidding.

Certified check or bidders bond in the amount of 5% of total amount of bid, payable to Milwaukee County, must be submitted with each proposal as a guarantee that if the bid is accepted, the bidder will execute and file a satisfactory contract and bond within ten days after the award of contract.

MILWAUKEE COUNTY PARK COMMISSION
Jerome C. Dretzka,
Executive Secretary

Bids: October 26, 1950 (166)

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:

CONTRACT NO. 61

The work to be done under this Contract involves the construction of approximately 21 miles of Turnpike pavement, of either reinforced Portland cement concrete or asphaltic concrete as selected by the Authority, comprising two 24 foot wide roadways, with paved shoulders and a grass median strip, together with pavement of the Mt. Holly and Bordentown interchanges, and of drainage, gutters, curbing, topsoiling and incidental work thereto, in connection with the construction of the New Jersey Turnpike, Section 2, between Moorestown and Allentown, in Burlington and Mercer Counties, New Jersey.

Principal Items of Work for Contract No. 61 include:

Borrow Excavation, 50,000 C.Y.; Reinforced Portland Cement Concrete Pavement including preparation of subgrade and construction of subbase course, or Asphaltic Concrete Pavement including preparation of subgrade and construction of subbase and base courses, 689,000 S.Y.; Paved Shoulders, alternative types, 110,000 S.Y.; 4" Topsoiling, 550,000 S.Y.; Storm Drain, Various Types and sizes, 35,000 L.F.; Drop Inlets, various types, 800 Each; Sod Curbing, 227,000 L.F.; Concrete Curbing, various types, 21,000 L.F.

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, until 10:30 o'clock on the morning of October 26, 1950, and thereafter in the Veteran's Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey, until 11:00 A.M. on the same date, at which latter time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal a financial statement and a statement of plant and equipment. Contract documents may be seen and may be inspected by prospective bidders during office hours, after September 27, 1950, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey, and at the office of the Engineers, Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York 6, New York.

Contract Documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded, and Contract Documents are not required to be returned.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications for construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the Contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority and a proposal bond, each for not less than five (5) percent of the amount of the proposal, but not less than $500.00 nor more than $200,000.00, and must be delivered at the above place on or before the hour named. Copies of the proposal form to be used for submitting proposals, of the form for proposal bond, of the form to be used for financial statement and plant and equipment statement to be submitted with proposal, and special addressed envelope are furnished in detached form with the Contract Documents.

The Contract will be awarded or proposals rejected on or before December 1, 1950. The right is reserved to reject any or all proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

September 25, 1950.

Bids: October 31, 1950 (115)

Cincinnati Little Miami Sewage Works

Contract No. 3

SEALED PROPOSALS will be received by the City Manager at the Department of Public Works, Room 104, CITY HALL, CINCINNATI, OHIO, until 12 o'clock noon of October 31, 1950 for the construction of the LITTLE MIAMI SEWAGE WORKS.

Plans and specifications with form of Contract and blank Proposal can be obtained at the office of the Division of Records, Room 317, City Hall, at $25.00 per set, which money will not be refunded. Single copies of the Specifications may be obtained at $10.00 each, and individual sheets of the Plans at $1.00 each, neither of which may be redeemed.

A bond or certified check on a solvent bank, payable to the City of Cincinnati in the amount of not less than ten per cent (10%) of the total amount of the bid, must accompany each proposal as a guarantee that if the proposal is accepted a contract will be entered into.

The City reserves the right to reject any or all bids. Bidders may compare copy with original.

W. R. KELLOGG
City Manager

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 3197) will be received by Bureau of Reclamation, Denver, Colorado, October 26, 1950, and then publicly opened for furnishing three 74,000-horsepower, 163.6-rpm, vertical-shaft hydraulic turbines for Central Valley Project, California. Complete delivery is desired within 500 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.

(116)

(Continued on page 95)

Additional
OFFICIAL PROPOSAL
Advertisements
on pages 93, 95, 96, 97, and 100

OFFICIAL PROPOSALS

(Continued from page 94)

Bids: October 17, 1950 (109)

Outlet Drain

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTES 5 & 6 CONNECTION—OUTLET DRAIN

Routes 5 and 6 Connection, Outlet Drain, in Temple Terrace and Delia Boulevard, Borough of Palisades Park, Bergen County.

Length 0.169 miles.
Estimated:

16'—18" Rein. Concrete Pipe
536'—30" " " "
336'—36" " " "
5 Manholes

Bids for the above will be received at the office of the State Highway Department, Room 140, in the State Highway Office Building, 1035 Parkway Ave., Trenton, N. J., on Tuesday, October 17, 1950, at eleven o'clock (11:00 A. M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: October 10, 1950 (112)

Contract for Construction of Drainage Improvements

NOTICE IS HEREBY GIVEN that pursuant to a resolution of the Town Board of the Town of Greece, Monroe County, New York, sealed proposals shall be received and considered by said Town Board on the 10th day of October, 1950 at 7 o'clock P.M., Eastern Standard Time, at a meeting of the Town Board in the Town Hall in the Town of Greece, Monroe County, New York, for the furnishing of all materials and equipment together with all labor for the construction of improvements to *Hoover Brite Drainage District No. 3*, Town of Greece, in accordance with proposed contract, plans, profiles, drawings, instructions to bidders, specifications, and estimates prepared by Ginnity & Morrison, Civil Engineers, and approved by the Town Board of said Town, all of which are on file with the Town Clerk at his office in the Town Hall of said Town where the same may be examined during the usual business hours. Copies of the proposed plans, profiles, drawings, instructions to bidders, specifications and estimates may also be examined at the office of Ginnity & Morrison, Engineers, at their office at 39 State Street, City of Rochester, New York.

Each person or corporation desiring a copy of said proposed contract, plans, profiles, drawings, instructions to bidders, specifications and estimates, shall before taking the same, deposit to guarantee the safe return of such plans and specifications, the sum of Ten Dollars ($10.00) for each copy thereof taken. If a proposal is duly submitted by any person or corporation making the required deposit, and such proposal is accompanied by a certified check, or other security, in accordance with the requirements contained in this public advertisement for bidders, the full amount of such deposit for one copy of the plans and specifications shall be returned to such person or corporation if the copy of the plans and specifications used by such person or corporation is returned in good condition within thirty (30) days following the award of the contract covered by such plans and specifications, or the rejection of thee bid of such person or corporation.

Each proposal must be accompanied by a certified check in the sum of Twelve Hundred and Fifty Dollars ($1250.) payable to the order of Gordon A. Howe, Supervisor of the Town of Greece, or a bond with sufficient sureties to be approved by the Supervisor in the penal sum of Twelve Hundred and Fifty Dollars ($1250) conditioned that if his proposal is accepted he will enter into a contract for the same, and that he will execute such further security as may be required for the faithful performance of the contract. The Town Board reserves the right to reject any and all bids and proposals and to advertise anew, and to award one contract for the entire work or separate contracts for portions thereof if in its judgment it shall deem it to be for the best interests of the Town so to do.

All bids and acceptances thereof will be subject to the receipt by the Town of formal permission from the New York State Department of Audit and Control to the creation or extension of the District.

BY ORDER OF THE TOWN BOARD,
TOWN OF GREECE
N. Raymond Kraft
Town Clerk

Dated: September 20, 1950.

Bids: October 10, 1950 (113)

Contract for Construction of Drainage Improvements

NOTICE IS HEREBY GIVEN that pursuant to a resolution of the Town Board of the Town of Greece, Monroe County, New York, sealed proposals shall be received and considered by said Town Board on the 10th day of October, 1950 at 7 o'clock P.M., Eastern Standard Time, at a meeting of the Town Board in the Town Hall in the Town of Greece, Monroe County, New York, for the furnishing of all materials and equipment together with all labor for the construction of improvements in Sanitary Sewer District No. 2, Town of Greece, in accordance with proposed contract, plans, profiles, drawings, instructions to bidders, specifications and estimates prepared by Ginnity & Morrison, Civil Engineers, and approved by the Town Board of said Town, all of which are on file with the Town Clerk at his office in the Town Hall of said Town where the same may be examined during the usual business hours. Copies of the proposed plans, profiles, drawings, instructions to bidders, specifications and estimates may also be examined at the office of Ginnity & Morrison, Engineers, at their office at 39 State Street, City of Rochester, New York.

Each person or corporation desiring a copy of said proposed contract, plans, profiles, drawings, instructions to bidders, specifications and estimates, shall before taking the same, deposit to guarantee the safe return of such plans and specifications, the sum of Ten Dollars ($10.00) for each copy thereof taken. If a proposal is duly submitted by any person or corporation making the required deposit, and such proposal is accompanied by a certified check, or other security, in accordance with the requirements contained in this public advertisement for bidders, the full amount of such deposit for one copy of the plans and specifications shall be returned to such person or corporation if the copy of the plans and specifications used by such person or corporation is returned in good condition within thirty (30) days following the award of the contract covered by such plans and specifications, or the rejection of the bid of such person or corporation.

Each proposal must be accompanied by a certified check in the sum of Ten Thousand Dollars ($10,000) payable to the order of Gordon A. Howe, Supervisor of the Town of Greece, or a bond with sufficient sureties to be approved by the Supervisor in the penal sum of Ten Thousand Dollars ($10,000) conditioned that if his proposal is accepted he will enter into a contract for the same, and that he will execute such further security as may be required for the faithful performance of the contract. The Town Board reserves the right to reject any and all bids and proposals and to advertise anew, and to award one contract for the entire work or separate contracts for portions thereof if in its judgment it shall deem it to be for the best interests of the Town so to do. The Engineer's estimate is $145,000.00.

All bids and acceptances thereof will be subject to the receipt by the Town of formal permission from the New York State Department of Audit and Control to the creation or extension of the District.

BY ORDER OF THE TOWN BOARD,
TOWN OF GREECE
N. Raymond Kraft
Town Clerk

Dated: September 20, 1950.

Bids: October 16, 1950 (114)

Toilet Partition Doors

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
HANGARS NOS. 3, 4 AND 5
CONTRACT NYA-147

Sealed proposals for toilet partition doors in Hangars Nos. 3, 4 and 5 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, N. Y., until 11:30 A.M. Monday, Oct. 16, 1950 at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, October 5, 1950

(Continued on page 96)

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of
ENGINEERING NEWS-RECORD

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Official Proposal Division
ENGINEERING NEWS RECORD
Address: New York 18, N. Y.

U. S. Government

(Continued from page 95)

KENDRICK PROJECT, WYOMING, Design Section, Casper, Wyoming, September 18, 1950

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. R7-158 will be received at P. O. Box 280, Reclamation Center, Casper, Wyoming, until 10 a.m., Mountain Standard Time, October 12, 1950, and then publicly opened for furnishing and delivering Structural Steel for Seminole Power Plant Additions, Kendrick Project, Wyoming.

Copies on the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: A. A. Batson, Regional Director, New Customhouse, Denver, Colorado, and I. J. Matthews, District Manager, P. O Box 280, Casper, Wyoming. No charge to prospective bidders for copies of the specifications; to others $0.50 per copy, not returnable.

OFFICIAL PROPOSALS

Bids: October 26, 1950 (107)

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:

CONTRACT NO. 61

The work to be done under this Contract involves the construction of approximately 21 miles of Turnpike pavement, of either reinforced Portland cement concrete or asphaltic concrete as selected by the Authority, comprising two 24 foot wide roadways, with paved shoulders and a grass median strip, together with pavement of the Mt. Holly and Bordentown interchanges, and of drainage, gutters, curbing, topsoiling and incidental work thereto, in connection with the construction of the New Jersey Turnpike, Section 3, between Mooretown and Allentown, in Burlington and Mercer Counties, New Jersey.

Principal Items of Work for Contract No. 61 Include:

Borrow Excavation, 50,000 C.Y.; Reinforced Portland Cement Concrete Pavement including preparation of subgrade and Construction of subbase course, or Asphaltic Concrete Pavement including preparation of subgrade and construction of subbase and base courses, 692,000 S.Y.; Paved Shoulders, alternative types, 410,000 S.Y.; 4" Topsoiling, 550,000 S.Y.; Storm Drain, Various Types and sizes, 35,000 L.F.; Drop Inlets, various types, 800 Each; Sod Curbing, 227,000 L.F.; Concrete Curbing, various types, 21,000 L.F.

Proposals will be received at the office of the New Jersey Turnpike Authority, 55 Prospect Street, Trenton, New Jersey, until 10:30 o'clock on the morning of October 26, 1950, and thereafter in the Veteran's Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey, until 11:00 A.M. on the same date, at which latter time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal a revised financial statement and a statement of plant and equipment. Contract documents may be seen and may be inspected by prospective bidders during office hours, after September 27, 1950, at the office of the New Jersey Turnpike Authority, 55 Prospect Street, Trenton, New Jersey and at the office of the Engineers, Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York 6, New York.

Contract Documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded, and Contract Documents are not required to be returned.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications for construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the Contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority and a proposal bond, each for not less than five (5) percent of the amount of the proposal, but not less than $500.00 nor more than $200,000.00, and must be delivered at the above place on or before the hour named. Copies of the proposal form to be used for submitting proposals, of the form for proposal bond, of the form to be used for financial statement and plant and equipment statement to be submitted with proposal, and special addressed envelope are furnished in detached form with the Contract Documents.

The Contract will be awarded or proposals rejected on or before December 1, 1950. The right is reserved to reject any or all proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

September 25, 1950.

OFFICIAL PROPOSALS

Bids: October 30, 1950 (987)

Sewage Treatment Plant

Notice is hereby given that sealed bids will be received in accordance with the law by the Ewing-Lawrence Sewerage Authority (mailing address, 156 West State Street, Trenton 8, New Jersey) until two o'clock P.M., Eastern Standard Time on the thirtieth day of October at the Lawrence Township Hall on the Trenton Princeton Road near West Church Road, for furnishing materials and performing the labor for constructing a three million eight hundred thousand (3,800,000) gallons per day rated capacity sewage treatment plant, all in accordance with the plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be obtained either from the Authority or from the Consulting Engineers at their New York office upon deposit of Fifty ($50.00) Dollars, which sum will be refunded upon return of the plans and specifications in good condition within twenty (20) days after the date on which bids are received or else the entire deposit will be forfeited.

The work to be performed is divided into four (4) sections, under which the work is classified according to its character. The principal items of work are as follows:

SECTION A — BUILDINGS AND STRUCTURES for a complete sewage treatment plant of three and eight-tenths (3.8 million gallons daily capacity, including a main building and pumping station, a garage and pumping station, two (2) primary clarifiers with sludge removal mechanisms, two (2) trickling filters with rotary distributors, two (2) secondary clarifiers with sludge removal mechanisms, two (2) sludge digestion tanks with floating covers, heating equipment, control building and heater building, four (4) glass-covered sludge drying beds, chlorine contract chamber and outfall sewer, complete with all equipment, piping and appurtenances.

SECTION B—ELECTRICAL EQUIPMENT AND WIRING for the sewage treatment plant, including switchboards, controls, power, light, gauge and metering wiring, conduit and accessories.

SECTION C—HEATING including boilers, radiators, piping, controls and accessories.

SECTION D-PLUMBING including water supply, sanitary and drain fixtures, piping, connections and appurtenances.

Each proposal must be accompanied by a certified check payable to the Ewing-Lawrence Sewerage Authority or bid bond from a reliable surety company authorized to do business in the State of New Jersey and satisfactory to the Authority, in amount equal to ten (10%) percent of the proposal. The certified checks will be retained to pay for any damage or loss to the Authority, or the liability bond will accrue in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

Each proposal must be accompanied by an agreement of a surety company qualified to do business in the State of New Jersey in the amount of such proposal, which agreement shall bind the surety company that if the contract be awarded the bidder it will, upon the contract being awarded, become surety for the faithful performance of said work. Said agreement shall be in writing and in the form of surety guarantee provided. The successful bidder will be required to furnish the statutory performance bond in the amount of his bid, approved as to form by the Authority counsel and as to sufficiency by the Authority.

The Authority reserves the right to consider bids for thirty (30) days after their receipt before awarding any contract and the right is reserved to accept any bid or to reject any or all of them.

EWING-LAWRENCE SEWERAGE AUTHORITY
H. Collin Minton, Jr. (Chairman)
Wilson O. Bachman (Vice Chairman
Garret S. Boetsma (Treasurer)
Wilfred F. Predhome (Secretary)
Harry E. Case
John G. Brady
Buck, Seifert and Jost
Consulting Engineers

OFFICIAL PROPOSALS

Bids: October 26, 1950 (105)

Grade Crossing Elimination Project

Sealed Proposals for the elimination of the grade crossing at New or Tower Road, Monmouth Junction, New Jersey, will be received by the Pennsylvania Railroad Company at the Office of Chief Engineer-Eastern Region, Room 450, Pennsylvania Station, 30th Street, Philadelphia, Pa., until 10 A.M., Eastern Standard Time on October 26, 1950, at which time and place they will be publicly opened and read.

The major items of work include the following approximate quantities:

37,000 c.y. Embankment
1,950 c.y. Foundation Excavation
8,900 s.y. Top Soiling
1,500 s.y. Macadam Base Course (6" thick)
500 tons Bituminous Concrete Surface Course
700 c.y. Class "B" Concrete in Structures
1,210 c.y. Class "C" Concrete in structures
127,700 lbs. Reinforcement Steel in Structures
952,000 lbs. Structural Steel
1,150 l.f. 24" diameter Reinforced Concrete Culvert Pipe
8 each Manholes
3,700 l.f. Concrete Curb
950 s.y. Bituminous Concrete Sidewalk
2,850 l.f. Guard Fence

The Contract Documents, including Plans and Specifications, may be examined and obtained at the Office of the Assistant Chief Engineer, Eastern Region, Room 351, Pennsylvania Station, New York City, upon deposit of Ten Dollars per set which will be refunded upon return of the Documents in good condition within twenty days after date on which bids are received.

Each Proposal must be accompanied by a certified check of the Bidder payable to the Pennsylvania Railroad Company, in an amount not less than five per centum of the Total Price stated in the Proposal, subject to the conditions provided in the Invitation to Bid.

Proposals must be submitted in a sealed envelope marked "Monmouth Junction Grade Crossing".

The right is reserved to reject any or all bids.

Pennsylvania Railroad Company
L. P. Struble, Chief Engineer-Eastern Rgn., Philadelphia, Pa.

(Continued on page 97)

Contractors Watch This Section —

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: October 11, 1950 (993)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of (1) the Highway Law and special provisions therein for projects financed with federal aid funds, (2) the Canal Law (3) the Public Buildings Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on October 11, 1950 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. NICKERSON, Dist. Engr., 333 Broadway, Albany, N. Y.				
Schenectady	M-98	Movable Dam #4 Scotia Movable Dam #5 Rotterdam		Replace Gates Dam #4, Replace Lower Gates Dam #5	$15,000 Plans $10	$286,534.25
		DISTRICT No. 3				
		WM. ROBINSON, Dist. Engr., 301 E. Water Street, Syracuse, N. Y.				
Cayuga & Onondaga	FA 0T50-6 FA 8T50-9 FA 8T50-10 FA-8T50-11	Ontario Thruway (Thwy.) (Port Byron-Jordan (Marg. Rds.) incl. 3 Marginal Roads) (Int. Rds.) Bonta's Bridge Road Oakland Road Town Highway at Sta. 1105 Proj. No. FI 1071 (9)	6.53 1.88 0.79	Fdn. Conc. Rob Grav. = 6.83 mi. Bit. Tr. Grav. FC = 1.92 mi. Asp. Conc. Ty. 1A, Opt. = 0.75 mi. I-Beam 51' 9" Sp. Alpha I-Beam 50' Sp. 4 Sp. Plate Girder, 255' 4" Total 4 Sp. Alpha I-Beam, 230' 4" Total Closed Box 29' Sp. Alpha Royalty = $445.20	$132,000 Plans $50	$2,204,000.00
Oswego	Ch. 944 Laws 1946	Utica St. Bridge & Approaches: City of Oswego	0.18	Asp. Conc. Type 2A 5 Sp. Plate Girder, 3 at 138', 2 at 93'	$50,000 Plans $15	$957,994.50
		DISTRICT No. 4				
		A. R. MELLIGAN, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Livingston	R-'50-53	Conesus-Wayland, sH1321	0.41	Asp. Conc. Ty. 1A, Opt. 2 Closed Box Conc. Culvts. 21' 3"y' and 27'	$9,000 Plans $15	$150,000.00
Livingston	F-8S50-6	Fowlerville Road, C. R. 5 & 22 Proj. 8286 (1)	2.18	Asp. Conc. Type 4A 3 Sp. Alpha Cant. I-Beam 300'	$25,000 Plans $15	$442,000.00
				Alpha Royalty = $250.10		
Monroe	S-C50-7 F-8S50-8	North Goodman Street North Goodman Street Ext. Proj. 8335 (1)	1.64	Asn. Conc. Ty. 1A, Opt. = 0.78 mi. Bit. Mac. Ty. I = 0.86 mi.	$22,000 Plans $10	$423,000.00
		DISTRICT No. 5				
		C. R. WATERS, Dist. Engr., 65 Court Street, Buffalo, N. Y.				
Erie	F-50-2	Lancaster Vill., Aurora St. Br. Lancaster Vill., SH915, Br. No. 1	0.23	8" Cem. Conc. Pavt. 40' Wide = 0.06 mi. Asp. Conc. Ty. 1A, Opt. = 0.13 mi. Misc. Work = 0.04 mi. Raising Exist. Brs.	5% of Bid Plans $10	$148,401.75
		DISTRICT No. 6				
		H. F. BARMAN, Dist. Engr., 30 West Main Street, Hornell, N. Y.				
Steuben	FARC50-47	Campbell-Bath, S. H. 5224 Proj. 1527 (7)	2.02	9" Cem. Conc. Pavt. 24' Wide = 1.85 mi. Asp. Conc. Ty. 1A, Opt. = 0.16 mi. Misc. Work = 0.01 mi.	$26,000 Plans $15	$459,000.00
		DISTRICT No. 8				
		J. S. BIXBY, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Ulster	FACT50-1 FACT50-2P FAST50-4 FAST50-5 FAST50-6 FAST50-7 FAST50-8	Catskill Thruway (Thwy.) Kingston-Saugerties) (Int. Rds.) Catskill Thruway (Saugerties-Greene Co. Line) CT48-1 Co. Rd. No. 90; Lake Katrine Rd.; Ruby Rd. & Co. Rd. No. 41; Co. Rd. No. 33; Co. Rd. No. 34 Proj. FI-1069 (2)	7.77 3.18	8" & 9" Cem. Conc. Pavt. 50' & Var. Width = 7.77 mi. Asp. Conc. Ty. 1A, Opt. = 7.65 mi. Misc. Work = 0.15 mi. 2 Sp. Alpha I-Beam 88.5' Ea. 2 Sp. Alpha I-Beam 72' Ea. 4 Sp. Alpha I-Beam 268' Total 4 Sp. Alpha I-Beam 205' 10" Total 4 Sp. Alpha I-Beam 214' 6" Total Alpha Royalty = $1,551.12	$290,000 Plans $100	$4,880,000.00
		DISTRICT No. 9				
		F. W. DONOVAN, Dist. Engr., 71 Frederick Street, Binghamton, N. Y.				
Broome	FARC50-46	Vestal Road, S. H. 420 Vestal-Binghamton, S. H. 1613, 1613A Proj. U 1019 (3)	4.98	Asp. Conc. Ty. 1A, Opt. (Eastbound) = 4.75 mi. 9" Cem. Conc. Pavt. 2 at 24' Wide (Westbound) = 4.66 mi. Misc. Work = 0.23 mi.	$40,000 Plans $15	$732,000.00
Delaware	B. W. S. 1, 1A, 5 & 6	New York City Board of Water Supply Town Connecting Roads No. 1, 1A, 5 & 6 Pepacton Reservoir	7.15	Bit. Mac. Ty. I (Pen. Meth.)	$67,000 Plans $25	$1,130,000.00
Sullivan	FARC50-52	Bloomingburg-Monticello, Pt. 2, S. H. 5457, 5457A Proj. F495 (3)	1.18	Asp. Conc. Ty. 1A, Opt. = 0.98 mi. Misc. Work = 0.20 mi. 2 Sp. Truss 140' ea. with 2 Sp. Plate Girders, 70' ea.	$46,000 Plans $15	$842,000.00
		DISTRICT No. 10				
		J. J. DANCY, Dist. Engr., Montauk Hwy. at Little E. Neck Rd., Babylon, L. I., N. Y.				
Suffolk	FARC50-50	Bridgehampton-Devon, Pt. 1, S. H. 1495 Proj. F559 (5)	1.60	Asp. Conc. Ty. 1A, Opt.	$12,000 Plans $10	$201,000.00

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal

OFFICIAL PROPOSALS

projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

OFFICIAL PROPOSALS

of the bidding check, the execution of the contract and bonds shall conform to the provisions of above-mentioned Laws, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: October 10, 1950 (984)

Heating & Ventilating Equipment

CONTRACT 425

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, October 10, 1950, for Contract 425, for furnishing, delivering, installing and testing heating and ventilating equipment for the sewage treatment plant and pumping stations of the Port Jervis sewerage system, in the City of Port Jervis, Orange county, New York, all as set forth in the specifications.

Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of $5.00 in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangement will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING T. A. HUBE, President, RUFUS E. McGAHEN, JAMES J. MORAN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: October 23, 1950 (983)

Sewage Treatment Project

CITY OF ELMIRA, NEW YORK

Sealed proposals will be received by Max F. Dennis, City Manager on the 23rd day of October, 1950 at 10:00 A.M., Eastern Standard Time, in the City Hall in the City of Elmira, New York, for the construction of a Sewage Treatment Project, consisting of improvements and enlargements to an existing Sewage Treatment Plant, all in accordance with plans, specifications and contract documents prepared by Nussbaumer & Clarke, Consulting Engineers for the City of Elmira. Plans and specifications are on file with the Engineer at the Bureau of Engineering, City Hall where they may be examined. Copies may be secured from the City Engineer or from the office of the Consulting Engineers, Nussbaumer & Clarke, 327 Franklin Street, Buffalo 2, New York, on payment of $50.00 deposit for each set. Any bidder returning such copy in good condition within 30 days following the receipt of bids, will be refunded a full deposit of $50.00, and any non-bidder upon so returning such copy will be refunded $25.00.

Each proposal must be accompanied by a certified check or bid bond in the amount of 5 per cent of the amount of the bid, payable to the order of Max F. Dennis, City Manager of the City of Elmira. The bond shall be approved by the City Attorney.

Proposals shall be submitted in sealed envelopes, plainly marked on the outside: "Bid for Construction of Elmira Sewage Treatment Project".

No bidder may withdraw his bid within 30 days after the actual date of the opening thereof.

The right is reserved to reject any or all bids.

MAX F. DENNIS,
City Manager

Dated September 28, 1950

U. S. Government

BIDS FOR REPOWERING TOWBOAT—Memphis District, Corps of Engineers, U. S. Army, P. O. Box 97, Memphis 1, Tenn. Sealed bids will be received here until 11:00 A.M., C.S.T., October 24, 1950, and then publicly opened, for repowering the twin-screw, diesel engine propelled towboat Comer using Government-furnished engines and accessories. $10.00 deposit required on plans. Information on request. (101)

(Continued on page 100)

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.20 cents a line, minimum 4 lines. To figure advance payment count 5 average words as a line.
INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.00 a line an insertion.

INFORMATION.
BOX NUMBERS care publication New York, Chicago or San Francisco offices count as 1 line additional in undisplayed ads.
DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:
The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS received by October 9th at the New York Office 330 W. 42 St., N. Y. 18, will appear in October 19th issue subject to space available.

SALES ENGINEER
ENGINEERING and CONSTRUCTION

Large industrial engineering and building firm has opening in Eastern Office for qualified Sales Engineer with contacts and recent experience in selling engineering and construction services.

Submit complete information stating experience, education, personal contacts, references, date available and salary requirement. All replies will be treated confidential.

P-7642, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

ESTIMATOR or COST ENGINEER

wanted for work in Brazil Age 28 to 40. By North American Company which has been building hydro-electric projects in Brazil for past 50 years. First class engineering and construction organization with good opportunities for future. Salary to suit qualifications. In reply state experience and personal status in detail. Reply to

Dept. WHK
Canadian Brazilian Services, Ltd.
Yonge & Gerrard Sts.
Toronto, Ontario, Canada

ENGINEERS *Wanted*
Civil—Electrical—Mechanical—Structural

Apply KAISER ENGINEERS
Division of Kaiser Industries, Inc.
1924 Broadway Oakland, California

ENGINEER

with experience in Development and Design of Centrifugal Pumps for manufacturing plant in New England. State qualifications and references.

P-7858, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

DESIGNERS, DRAFTSMEN - ELECTRICAL - MECHANICAL - STRUCTURAL. JOB LOCATED IN MIDDLE WEST. EXCELLENT WORKING CONDITIONS. GOOD SALARY. OLD ESTABLISHED COMPANY.

P-7813, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED, SEVERAL engineering graduates under 35, by large industrial fire prevention organization for field work involving periodic inspections and special consulting service. Electrical and chemical engineers preferred. Permanent. Openings in United States and Canada. P-7287, Engineering News-Record.

CONSTRUCTION COMPANY, operating nationwide, specializing in structural concrete, such as bridge piers and their foundations and mass concrete such as dams, require A No. 1 thoroughly experienced estimator familiar with present-day costs capable of preparing comprehensive and complete estimates. To be considered, complete information must be furnished. Our organization has been advised of this advertisement. P-6976, Engineering News-Record.

ROAD ENGINEER Wanted—Registered, with construction experience, also drafting and specifications. References. Modoc County Board of Supervisors, Post Office Box 177, Alturas, California.

ESTIMATOR EXPERIENCED with commercial, industrial and public building work. Give history record and salary expected in first letter. Kuhn Construction Company, Kanawha Valley Building, Charleston, West Virginia.

WANTED AT Once, By Architectural Firm in North Carolina, experienced Mechanical Engineer, capable of laying out heating and plumbing drawings and writing specifications, for all types of buildings. Good future for right man. All replies will be kept confidential. Apply to P-7792, Engineering News-Record.

WANTED—EXPERIENCED Estimator. Excellent opportunity for capable and aggressive person. J. H. Findorff & Son Inc., 601 West Wilson Street, Madison, Wisconsin.

PROJECT MANAGER to assume full charge of large industrial project. Must be thoroughly experienced in Building Construction. Write or wire how soon available, salary, experience, references, etc. Flodder Engineering & Construction Co., 930 Ellicott Square, Buffalo, N. Y.

ENGINEER-WRITER Statistical or business-writer for construction Daily—civil engineering background preferred—with additional training in economics or statistics. Age to 35, salary to $5,000. P-7831, Engineering News-Record.

CIVIL ENGINEER. Young man, municipal experience or training. Opportunity to learn municipal administration. Vacation, sick leave, hospitalization and group insurance plans. Mid-west. Apply P-7839, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connections and positions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

CIVIL ENGINEER, P.E., 20 years experience design and construction—bridge and building foundations, industrial buildings and plant structures, piers and bulkheads, bridges, heavy construction—desires responsible supervisory position with consulting engineer or contractor. FW-7814, Engineering News-Record.

(Continued on the opposite page)

CIVIL OR SANITARY ENGINEER for planning and executing operation and maintenance program for water and sewerage facilities, including sewage treatment plant, prefer graduate with related experience.

PROJECT ENGINEER for supervision of construction of sanitary sewers and sewage treatment plant, including responsibility for contract payments, assignment and supervision of inspection personnel, progress reports, etc.—two year program. Must be experienced.

CONSTRUCTION ENGINEER - INSPECTORS to supervise construction of sanitary sewers—two year program. Must be experienced. Apply Office of Sanitary Engineer, County of Fairfax, Fairfax, Virginia.

(NOTE: Applicants for all three of these positions should apply to the Office of Sanitary Engineer, County of Fairfax, Fairfax, Va.)

WANTED
SEWER DESIGNER

Responsible position for engineer with experience in design of large scale sanitary and storm sewers. Salary $6640-7740. Full Civil Service status.

FILE APPLICATION BEFORE OCTOBER 23, 1950

For information, apply

CIVIL SERVICE COMMISSION
Room 875, City Hall
City of Philadelphia, Pennsylvania

STRUCTURAL ENGINEERS

California offers long term professional employment to men with more than 5 years structural engineering including 2 years in charge of structural design of class "A" buildings.
Salary up to $584.
Write today. Recruitment Section, Dept. SE-1,
STATE PERSONNEL BOARD
1015 L Street Sacramento, California

WANTED—SALES ENGINEER

Experienced in blocks, concrete, steel, masonry and plaster supplies. Age 26 to 38.

RINKER MATERIALS CORP.
WEST Palm Beach, Fla.

Don't forget the
BOX NUMBER

When answering the classified advertisements in this magazine don't forget to put the box number on your envelope. It is our only means of identifying the advertisement you are answering.

CONSTRUCTION SUPERINTENDENT
THOROUGHLY EXPERIENCED
Hospitals, housing, industrial bldgs, sewers, roads and bridges. Req. Engr. Member ASCE. Prefer Ohio or Midwest location.
PW-7716, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED
(Continued from opposite page)

CONSTRUCTION MGR. Gen'l Supt. Exp. includes all details of entire heavy and light bldg. and allied constr. 30 yrs. exp. Salary $175.00 week. PW-7763, Engineering News-Record.

MANAGEMENT ENGINEER. Analysis of financial and manufacturing company reports, supervision over special situation, highly technical operations, plant improvements and extensions, development exports-imports. PW-7639, Engineering News-Record.

GENERAL SUPERINTENDENT and Engineer. 27 years experience in complete charge of dirt moving sewers, highways, tunnels, and foundations available immediately. PW-7668, Engineering News-Record.

CIVIL ENGINEER, 27 years structural steel design and fabrication experience. Available for responsible position. PW-7690, Engineering News-Record.

GENERAL CONTRACTOR'S Executive to take charge of estimating, bidding, purchasing, sub-contracts. 10 Yrs. experience industrial, commercial, public buildings, desires permanent position with future. PW-7802, Engineering News-Record.

CIVIL ENGINEER, Contractor-Engineer Representative or Resident Engineer. Broad field and office experience, general construction, highways, airports, municipal and major defense projects. Reports. Eighteen years on responsible assignments in Latin America, West Indies and Pacific Islands. Fluent Spanish. Willing to travel. Prefer South or foreign but any location considered. Reliable, active and in excellent health. Age 63. Personal interview suggested. Registered P. E., N. Y. Now in New York City. PW-7809, Engineering News-Record.

QUALIFIED ESTIMATOR for industrial, commercial and public buildings desires position with Michigan general contractor. 18 years experience in field and office. Age 36. PW-7826, Engineering News-Record.

FIELD ENGINEER or Topographer available soon. Presently employed as Project Engineer for Contractor. Experienced in office and field. Desire a permanent location for family. PW-7862, Engineering News-Record.

STRUCT. ENGINEER, highest qualifications, 25 years responsible experience in supervision, design, checking, details, field, rigid frame analysis. PW-7824, Engineering News-Record.

ENGINEER, STRUCTURAL, age 43, registered, experienced all types commercial and industrial design. Responsible charge work department manager large organization and as independent consultant. Southwest location preferred. PW-7834, Engineering News-Record.

FOUNDATION DESIGNER—estimator desires change. 6 years experience, graduate engineer. Working knowledge of soil mechanics theories. Presently doing contact work and estimating for contractor. Excellent knowledge of all types of foundation construction. Wants position of responsibility. PW-7847, Engineering News-Record.

MAN, 40, College Graduate. Administrative and supervisory experience familiar with construction and desires position in construction or allied industry. PW-7870, Engineering News-Record.

PART TIME WORK WANTED

N. Y. STATE Licensed Structural Engineer, Designer and Detailer available for part time work. 35 years experience. PTWW-7812, Engineering News-Record.

WORK WANTED

Engineering Staff
specializing in reinforced concrete structures. Registered N. Y. State. Will handle subcontracts, space and competent staff available. Location N.Y.C. WW-7741, Engineering News-Record.

SUBMERGED PIPE LINE CONSTRUCTION
BOYCE COMPANY
Phone 3-2530 Clearwater, Fla.

STRUCTURAL ENGINEERING
A Course of Instruction by Mail

FOR FORTY YEARS our courses have helped thousands to better positions and to pass State Board Examinations.
Information sent without obligation. Write today.

WILSON ENGINEERING CORP.
College House Offices - Dept. E.
Harvard Sq. Cambridge, Mass.

ESTIMATING SERVICE
Any Trade and Type of Project
Literature and Sample on request
Construction Survey Cooperative
101 Park Ave., New York 17, N. Y.
MUrray Hill 5-7317 Founded 1922

WANTED

WE WISH TO BUY
ALL KINDS OF CONTRACTORS EQUIPMENT
Cash Paid Before Shipment
CRUSHERS, MOTOR GRADERS, SHOVELS, TRACTORS, ASPHALT EQUIPMENT, ROLLERS, ETC.
DUKE EQUIPMENT CO., LTD.
297 Duke St. Montreal, Que.

WE BUY OR SELL
All Types of
TRENCHING MACHINES
AIR COMPRESSOR RENTAL CO.
19615 NOTTINGHAM RD. CLEVELAND
Kenmore 1-8000

WANTED
1—2000 or 3000 Speed Crane
1—#1 Vulcan Hammer
1—#400 Vulcan Extractor
M. A. WEINREIS
2308 N. Sherman Blvd. Milwaukee 10, Wisc.

WANTED
Plymouth Gasoline Locomotives
Model AL, 3 ton, 24" gauge.
Parson Backfiller, Model 32.
HYPER-HUMUS CO.
Newton, N. J.

WANTED
Used Locomotive Crane, Diesel Electric Propelled electrically to handle a minimum of 50' boom and 1½ yd clamshell.
CONTRACTORS SALES CO., Inc.
Box 988, Troy, N. Y. ARsenal 3-5420
Erie Blvd., Syracuse Syracuse 6-3141

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

INSTRUMENT REPAIR BY CRAFTSMEN

Our craftsmen have a completely equipped department fully able to accommodate the repair of all makes of transits, levels and measuring tape. Work includes thorough overhaul, cleaning, oiling and adjustment.
Precision work guaranteed.
DAVID WHITE COMPANY
317 W. Court St., Milwaukee 12, Wis.

INSTRUMENTS FOR RENT
We rent transits and levels on a monthly or yearly basis. Reasonable rates. All instruments are fully guaranteed in first class working order.
DAVID WHITE COMPANY
317 W. Court St. • Milwaukee 12, Wis.

FOR RENT

FOR RENT
Motor Truck Cranes 20 ton capacity
2—Bay City — 1—Lorain
100 foot boom — 15 foot jib
Semi Trucks — Winch trucks
Derrick trucks — Low Boy trailers
Air Compressors — Portable Welders
L. I. Griffin & Sons, Inc.
5002 South Hanna St.
Fort Wayne, Indiana
Phone H-3295

FOR RENT
16-E Koehring Dual Paver
Mounted rubber. Self-propel. Diesel.
HICKEY CONSTR. CO.
12 Engle St. Englewood, N. J.

FOR RENT
4—Caterpillar D-7's Tractors with bulldozers
1—Lorain 77, Standard front. Location, Western Pennsylvania.
F. E. WELSH
2820 Ludlow Road Cleveland 20, Ohio

FOR SALE

1—Lorain 820 Dragline Crane, used only 3 months, new condition
1 Koehring 501 Dragline Crane
1 Bucyrus Erie 41B Shovel Crane
1 Northwest 6 Shovel
2 Caterpillar D8 Tractors with Angledozers, late series
2 Caterpillar D7 Tractors with Angledozers in 7T1200 series
1 New Caterpillar D8 Tractor with front power unit and straight blade
1 Northwest 6 Shovel Front, used 5 months
1 Lima Shovel Front for 1½ yard Machine
1 Bay City 65 Shovel Front
1 Bucyrus Erie 16B Shovel Front
1 General Shovel Front for 1½ yard Machine
1 Parsons Trencher, model 310 Diesel.

Wire, Call or Write

Day Phone Enka, N. C. 120 or 722 — **AL. J. GOODMAN** — Nite Phone Box 263 Asheville, N. C. Asheville, N. C. 5868

FOR QUICK SALE

5—Super-C Turnapulls with L. P. Scrapers, 15 cu. yd.
2—Super-C Turnapulls with 210AW Tournatrailers
1—210AW Tournatrailer unit only

Location—Eastern Pennsylvania. Generally good condition. Offered at very attractive prices.

FS-7702, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

CRANE BARGAIN

1—Model 18 Northwest ½ yd. crane and dragline with the same guarantee as a new machine.

Hunter Tractor & Machinery Company
327 South Sixteenth Street, Milwaukee 3, Wisconsin
ORchard 2-6580

FOR SALE

80 D NORTHWEST COMBINATION CRANE & SHOVEL DRAGLINE.
4500 MANITOWOC DRAGLINE WITH NEW WAUKESHA ENGINE.

CHAS. M. INGERSOLL CO.
19930 Detroit Rd. — Rocky River, Ohio

FOR SALE

1947 ¾ yd Buckeye

Model 70 Chrysler Industrial Engine Back-Hoe 35 foot boom, ½ yd Clam, Wide tracks. Excellent Condition.

WM. A. KUTZKE
Phone 482 — Portage, Wis.

FOR SALE

SAND STONE QUARRY—40 ACRES

All purpose Monticello Sand Stone. Building, paving and wall equipment included. Near railroad.

WOODROW SANDSTONE CO.
RD #1, Imperial, Pa. — Phone Imp. 6608

FOR SALE USED EQUIPMENT

General contractors equipment consisting of Six to Ton switching Locomotives, Twenty, Twenty-five and Thirty tone dinkeys, Twelve and sixteen yard Air Dumps, Jordan Spreader, Large stationary crushing plant with forty two inch primary gyratory crusher.

DOMINION CONSTRUCTION CORP. LTD.
18 Aldbury Gardens, Toronto 12, Ont.

TD 14 Hough Bulldozer Shovel—New 1948 ..... $8000.00
Nelson Type Bucket Loader mounted on DS50 Int. Chassis $2400.00

ROY J. KERN
Schnecksville — Penna.
Phone: Allentown 23R2

FOR SALE—SHEETING

400 16 ft. pieces of Armco black steel flange type sheeting with pulling holes and 4 driving heads in new condition. Price—$3500.

NANCE & VIVADELLI CO.
2420 WILSON BLVD. — ARLINGTON, VA.

FOR SALE

Lorain shovel, ½-yard; Bucyrus-Erie shovel & crane, with ¾-yard clamshell bucket; Mack tractor with Cummings-Diesel engine & air brakes; Austin Western gas roller, 12 tons; Caterpillar R4 bulldozer; TD-14 bulldozer; 310 and 105 cubic feet Ingersoll-Rand air compressors.

S. F. PANDOLFO
111 Asylum St. — Hartford, Conn.
Tel. 6-9011 & 6-0611

Northwest Crane Crawler, Model 25, Excellent condition. Independent boom hoist, 50' boom.
Badger Trench Machine, demonstrator, rubber tired, mobile.

J. P. WAITE, INC.
3304 W. Pierce St. — Milwaukee 4, Wis.

FOR SALE

1—Floating Pile Driver, Wood Hull 55' 3" x 23', Leads 60 ft., 1,000 lb. Drop Hammer, Two Drum Lidgerwood Engine 9" x 10" I.B.W. Boiler 150 H.P., Worthington Steam Jet Pump 10" x 6" x 10", Compressor and Air Receiver.
1—Koehring Paver, 27-E Serial #17386, Waukesha Gas Engine #320609.
1—Vertical Steam Boiler, 50 H.P.

Estate of Andrew Weston
158 Irving Place — Woodmere, L. I., N. Y.
Franklin 4-0220

FOR SALE

1940 LORAIN 79D
1½ cu yd SHOVEL CAT DIESEL.
FOR SALE OR RENT
1950 LORAIN 820
2 cu yd SHOVEL WAUKESHA DIESEL.

FS-7853, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

New "SEARCHLIGHT" Advertisements

received by October 9th will appear in the October 19th issue, subject to space limitations.

Classified Advertising Division
ENGINEERING NEWS-RECORD
330 W. 42nd St., New York 18, N. Y.

SEARCHLIGHT" Opportunity Advertising

—to help you get what you want. —to help you sell what you no longer need.

Take advantage of it—For Every Business Want

"Think SEARCHLIGHT First"

OFFICIAL PROPOSALS

(Continued from page 97)

Bids: October 17, 1950 (110)

Construction of Route

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 151, SECTION 1B
Construction of Route 151, Section 1B, Federal Street to Pennsylvania-Reading Seashore Lines (Wright Avenue), Grading, Drainage and Paving, City of Camden, Camden County, Federal Project No. U-69(15). Length 0.6 mile.

Estimated:

Roadway Items
38,000 cu. yds. Roadway Excavation-Earth
10,500 sq. yds. Pavement Excavation
35,700 sq. yds. 4" Macadam Base Course
35,500 sq. yds. 3" Pen. Macadam Inter. Course
4,270 tons Pavement, Type MA-BC-1
6,500 sq. yds. 10" Rein. Conc. Pavement Surface

Bridge Items
22,700 lin. ft. Treated Timber Piles
1,307 cu. yds. Concrete in Structures
152,950 lbs. Rein. Steel in Structures
720,000 lbs. Structural Steel

Bids for the above will be received at the office of the State Highway Department, Room 149, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. on Tuesday, October 17, 1950, at eleven o'clock (11:00 A. M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 23 of the Revised Statutes of New Jersey and supplements and by Section 1 Public Laws 834, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 558 Broadway, Camden, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

READ THE OFFICIAL PROPOSAL COLUMNS OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

CLEVELAND TEX TRENCHER

Lorain 820 Shovel, Marion 362 Combination, 80-D Northwest Shovel, Northwest Model 6 Backhoe, Buckeye ¾ Yd. Shovel, Lorain Model 80 1¼ Yd. Shovel, Lorain Model 41 Shovel, Osgood Model 200 ½ Yd. Comb. Bucyrus Models 15-6 and 22-B Cranes. 5—D8's dozers in 2U Series. 5—HD19's dozers, International TD24, TD18, TD9, TD6 dozers. Parsons 318 Diesel Trenchliner, Buckeye C-15, C-18, C-20, 401, 410, 190, 95. P & H Trencher Model 1030. Austin 105, Model 16-S Truck mounted. Garwood 17 Yd. Model 515 Scraper, Bucyrus-Erie 18 Yd. Model 512 Scraper, Bucyrus-Erie 8 to 10 Yd. Model S-67 Scraper. Diesel heavy tandem Warco Motor Grader, International I-6 Bulldozer with rubber tires. Novo Paving Breaker mounted on White Truck. Clamshell and Dragline Bucket—all sizes. Northwest Shovel Fronts Model 2, 25, 6 and 80-D. Marion 362 Shovel Front. Buckeye ¾ Yd. Shovel Front Model 70. Link Belt Model LS-40 Front. Lima 1201, 802. Manitowoc Shovel Front Models 3500 Std. and Model 3000 Std. Lorain Shovel Front Model 30 ½ Yd. P & H Shovel Front Model 400. Osgood 1½ Yd. Front. Lorain 820 Shovel Front. 10—DW10's with LaPlant Choate Scrapers. 5—LeTourneau Super C Tournapulls. 5—Woodridge Terra Cobra Prime Movers. Backhoe Attachments for P & H 255, Osgood Model 200, Insley Model K-12 and Bay City Model 45. Fairleads for Osgood 200, Insley K-12 and Bucyrus-Erie B22. Crane Booms for Northwest 76, Insley, Osgood and Lorain 820 and 80. Cleveland Back Fill Tamping Machine.

AIR COMPRESSOR RENTAL CO.
19615 Nottingham Road Cleveland, Ohio
Kenmore 1-8000

FOR SALE
1—N. W. SHOVEL
¾ c.y. Model 25
Optional as Crane or Backhoe
WILLIAMS CONSTRUCTION CO.
Box 145 Middle River, Baltimore 20, Md.
Phone—Essex 1310

PILING

Need STEEL SHEET PILING?

RENT OR BUY IT! FASTER FROM FOSTER

LARGEST STOCKS IN U. S.
All Lengths • All Sections
Also Corrugated Steel Sheet Piling

Foster's rental rates give you a low fixed expense for competitive bidding purposes.

Pile Hammers & Extractors For Rental
Rails•Track Accessories•Wire Rope•Pipe

L.B. FOSTER CO.
PITTSBURGH 30, PA. CHICAGO 4, ILL.
HOUSTON 2, TEX. NEW YORK 7, N.Y.

We do a Nation-Wide business in
STEEL SHEET PILING
New & Used Rented & Sold

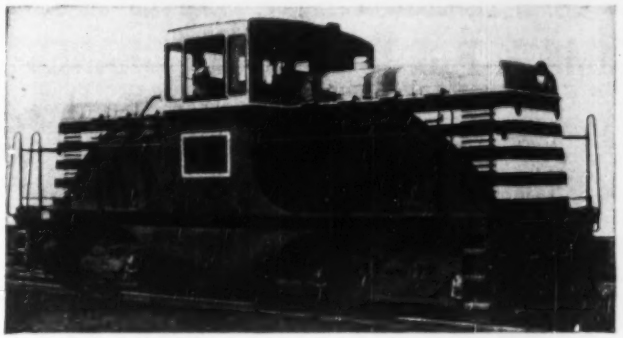
54 pcs. 60 ft. Carn. M115-Chicago
450 pcs. 37-20 ft. Beth. SP1-Alabama
270 pcs. 27-25 ft. Carn. M112-Minnesota
234 pcs. 20 ft. Inland 122-Mississippi
337-pcs. 20-19 ft. Carn. M116-Buffalo, N. Y.

Other lengths & sections at various locations

All sizes Vulcan & McKiernan Pile Hammers & Extractors for Rent and Sale—Shop Rebuilt
Regardless of location of your job, wire or write

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., St. Louis, Mo.
"WE BUY STEEL PILING FOR CASH"

G.E. 44 TON DIESEL ELECTRIC LOCOMOTIVES

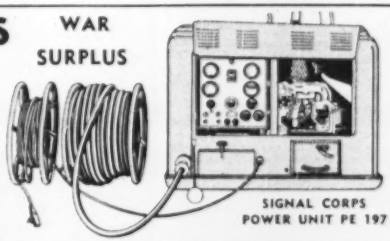


1 STANDARD GAUGE—1 NARROW GAUGE

1—75 Ton Steam Switching Locomotive Completely Overhauled
Priced for a Quick Sale
WRITE or WIRE
FS-7673, ENGINEERING NEWS-RECORD
330 West 42nd St., New York 18, N. Y.

LIGHT PLANTS
Brand New!

WAR SURPLUS



115 volt 60 cycle A.C. single phase 5 K.W. Hobart, water cooled, 14 h.p. 4 cylinder Hercules Engine. Remote Control, complete panel board with instruments, 150 ft. automatic remote control cable with reel; 150 feet #6 heavy duty wire with reel; housed in metal case with replacement parts and tools. Cable with reels alone worth $400. Regular price of unit $1900.00. Shipping wt. 1250 lbs. Our price, complete ..... $895.00 f.o.b. Chicago

Also 2½ K. W. power plant $295.00

SIGNAL CORPS POWER UNIT PE 197

WRITE FOR ILLUSTRATED FOLDER

WELLWORTH TRADING CO.
1831 S. State St. DEPT. ENR 11 Chicago 16, Ill.

FOR SALE
Reliance Crushing Plant
15" x 30" Crusher—38' Bucket Elevator
58" x 17" Roller Screen—100 Ton Capacity Bin
2 Gaso. Engine Power Units
ABERTHAW COMPANY
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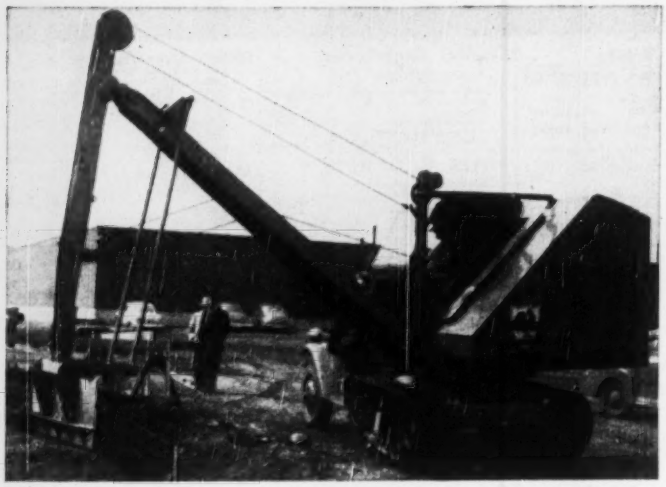
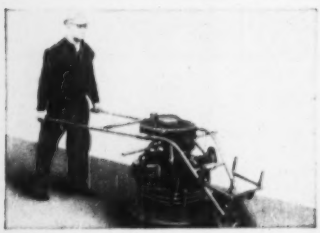


Backfill Blade Fits the Truck-Mounted Bantam Trench Hoe

Feature of backfill attachment for the ¾-yd truck-mounted Schield Bantam trench hoe is that the blade remains vertical to the ground as it is pulled toward the machine. It consists of a cable-operated steel blade mounted on a wishbone dip stick with two tubular control arms. Equipped with a heavy-duty 24x60-in. blade with 4-in. reversible cutting edge, the attachment has a maximum reach of 23 ft 6 in. in any direction, plus ability to work to within 1 in. of the center of machine rotation. Vertically, the backfill blade attachment can be controlled within 1 in. of the ground surface.—Schield Bantam Co., 201 Park St., Waverly, Iowa.



Gasoline-Driven Compressor

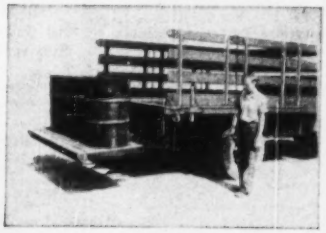
Spot air compressor has a capacity of 36 cfm at 80 psi. It weighs 265 lb, and stands 32-in. high on a 27-in.-dia baseplate. A special wheelbarrow mounting adds to its portability. Fuel-tank capacity permits from 2 to 2½ hours continuous operation.—Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

Gasoline-Powered Chain Saws

Portable chain saws, powered by 5-hp gasoline engine, are available for both one and two-man operation. The one-man models range in cutting capacity from 20 to 36 in.; the two-man models equipped with an idler-type tailstock are offered in 24, 30, 36, 48, and 60-in. capacities. Handlebars and float-type carburetor remain in upright position for all operations as the engine and cutting attachment swivel a full 360 deg. The R-P automatic clutch stops chain when engine is idling.—Reed-Prentice Corp., Dept. R-1, Worcester 4, Mass.

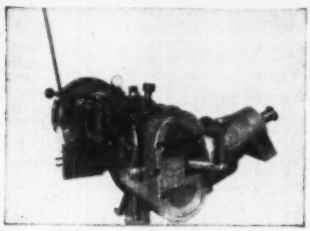
Overhead Loader-Shovel

One-yard combination overhead loading and front-end-loading tractor-shovel is designed as matching equipment for International Harvester crawler tractors. Low overhead clearance permits use of the Lodover in restricted quarters. Features claimed include extra digging power at the bucket and special bucket tilt-back at ground level. Attachments for the Lodover include hydraulic dozer blade mounted inside the tracks, hydraulic angle blade, lift fork, rear-mounted winch, crane boom with 10,000-lb capacity, snow bucket, and v-type snow plow.—Service Supply Corp., 20th & Erie Ave., Phila. 32, Pa.



Hydraulic Tail Gate

Truck end gate is hydraulically operated. Power for the hydraulic system is obtained from a power take-off. One hydraulic cylinder controls lowering, raising, and closing of the gate. Load capacity is 3,000 lb.—The Perfection Steel Body Co., Galion, Ohio.



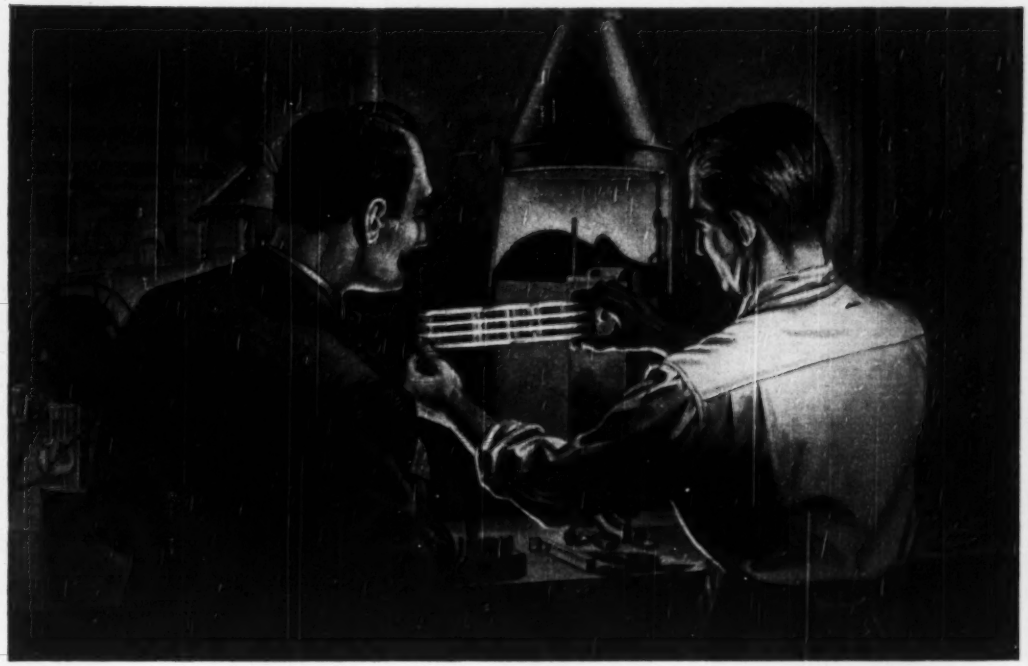
Truck-Mixer Transmission

Transmission for truck mixers incorporates a torque converter and fluid flywheel. Advantages claimed include: 50% reduction in required horsepower, total absence of shock loads, and greatly increased clutch life. (The manufacturer states that with a 4½ or 5-yd. mixer, engine requirement is only 28 hp.) In reversing from mixing to discharge, shock is absorbed through the fluid flywheel.—Transmission & Gear Co., 10421 Haggerty Ave., Dearborn, Mich.

Aluminum Siphon Tube

Giant aluminum Kingsiphon is said to deliver approximately 320 gpm with a 6-in. head. Recommended for ditch and flood-type irrigation systems, it has a 6 in. diameter, is 10 ft long, and has a triple bend designed to fit and operate from concrete-lined as

(Continued on page 109)



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See how accurately . . . and to what minute degree . . . every element in the lead is measured.

What and *how much* are important to know. For a very small percentage of certain elements can affect battery performance and life.

Yet spectrum analysis is but one example of the great care taken by Exide to produce a battery with the mighty cranking power that Diesel starting demands.

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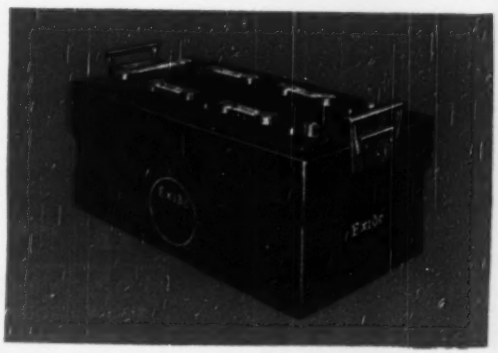

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well as dirt ditches. The Kingsiphon features smooth bends, is seamless, and weighs 13 lb. A welded-on handle facilitates starting. It is available in three sizes: 4 in.x8 ft; 5 in.x10 ft; and 6 in.x8 ft.—Reynolds Metals Co., 2500 S. 3rd St., Louisville, Ky.

Steel Salvage Tool

Ripper Jack is an all-steel tool for removing sheathing, siding, flooring, roofboards, and similar materials with a minimum of damage. It will work from either side of wall, roof, or ceiling. Shoe is easily reversed for inside or outside leverage.—Calumet Steel Castings Corp., 1636 Summer St., Hammond, Ind.

Steam-Cleaning Machine

Gasoline-powered steam cleaner is available in two models—the Model A has a 120-gal capacity; the Model AR combines, in one unit, a steam cleaner of 150-gal capacity and a high-pressure rinse unit of 275 gph. Both are oil fired and are available in stationary, portable, or trailer types.—Clayton Mfg. Co., El Monte, Calif.

Vertical Turbine Pumps

Complete line of vertical turbine pumps ranges in capacities from 50 to 15,000 gpm. Either oil or water-lubricated units are available, arranged for motor drive, right-angle gear drive, or belt drive. Features include extra-size

(Continued on next page)

LACLEDE *Multi-Rib* Reinforcing Bars

ROUND BARS in all sizes . . . to meet latest ASTM A305 Specifications . . . conveniently marked to make your specification job easier. And, of course, improved Laclede deformations mean uniform reinforcement strength, maximum anchorage—plus a more efficient use of steel by eliminating hooks and shortening embedment lengths.

TABLE OF ASTM A305 SPECIFICATIONS

	NOMINAL DIMENSIONS ROUND SECTIONS			REQUIREMENTS OF DEFORMATIONS		
Bar No.*	Unit Wt. Lbs./Ft.	Diameter-Inches Decimal	Cross Sectional Area Sq. Inches	Perimeter	Max. Avg. Spacing In.	Min. Height Inches	Max. Gap. Inches°
2†	0.167	0.250	0.05	0.785	.. ..	.. ..	.. ..
3	0.376	0.375	0.11	1.178	0.262	0.015	0.143
4	0.668	0.500	0.20	1.571	0.350	0.020	0.191
5	1.043	0.625	0.31	1.963	0.437	0.028	0.239
6	1.502	0.750	0.44	2.356	0.526	0.038	0.286
7	2.044	0.875	0.60	2.749	0.612	0.044	0.334
8	2.670	1.000	0.79	3.142	0.700	0.050	0.383
9‡	3.400	1.128	1.00	3.544	0.790	0.056	0.431
10‡	4.303	1.270	1.27	3.990	0.889	0.064	0.487
11‡	5.313	1.410	1.56	4.430	0.987	0.071	0.540

*Bar numbers are based on the number of ⅛ inches in the nominal diameter of the section.
†Bar number 2 in plain rounds only.
‡Bars numbered 9-10-11 correspond to former 1" sq., 1⅛" sq., and 1¼" sq. sizes, and are equivalent to those former standard bar sizes in weights and nominal cross-sectional areas.
°Chord of 12 ½% of Nom. Perimeter.

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Hayward Buckets

Use this Class "E" Clam Shell Bucket for handling crushed stone, gravel, sand and other bulk materials.
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POWER LIFT DETACHABLE GOOSENECK

TRAILER

PATENTS PENDING

1 *Carries heavier loads on larger tires.*
2 *Detaches quickly for fast, easy front loading.*
3 *Stoops to clear low overhead obstructions.*
4 *Raises its deck to clear high banked crossings.*
5 *Is detached, loaded and re-attached in 5 minutes.*

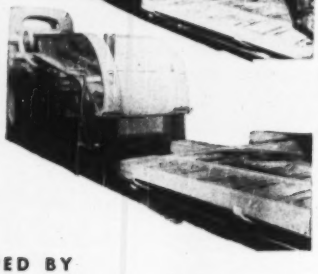
IT'S EASY AS

A B C

a Loaded trailer with deck in normal position for traveling.

b Front of trailer being lowered by cable operated ram for quick, easy front loading. Ram is powered by the customers winch.

c Front end of trailer lowered to ground. No blocking is required under frame.



d Tractor and gooseneck moved forward for quick, easy front loading.

DEVELOPED BY

The Trailer Pioneers

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bearings of special materials for long life; shaft seals where required; enclosed impellers throughout; wearing rings; and flanged and bolted bowl construction.—WORTHINGTON PUMP & MACHINERY CORP., HARRISON, N. J.

Combination Face Mask

Respirator and safety goggles are combined in a one-unit face mask. The R2000 respirator protects against a variety of dusts or gases by means of specific cartridges or disk filters. The No. 700 goggle provides an air-tight fit. Ventilation is indirect to provide additional safety. The lenses are of shatter-resistant acetate. —AMERICAN OPTICAL CO., SOUTHBRIDGE, MASS.

Mobile Radio Combination

New 50-w mobile combination operates in the 148-174-mc band. The 204 features a low-cost tube complement, easily adjustable tuned circuits having triple-tuned transformers, and a new built-in low-pass harmonic filter in the antenna output circuit that attenuates harmonics at least 70 db. Receiver circuit elements provide better than 100 db adjacent channel selectivity.—GENERAL ELECTRIC CO., ELECTRONICS PARK, SYRACUSE, N. Y.

Ammonia-Type Whiteprinter

Versa-Liner Model D is described as a full-size, economical, ammonia-type Whiteprinter for blue line, black line, sepia intermediates, and other ammonia-type colored-line whiteprints. Using a fluorescent light source, it plugs into standard 115-v 60-cycle ac lines, and draws 19 amps. Mechan-

(*Continued on page 114*)

Save on water main costs with easy-to-install "Century" ASBESTOS-CEMENT PIPE

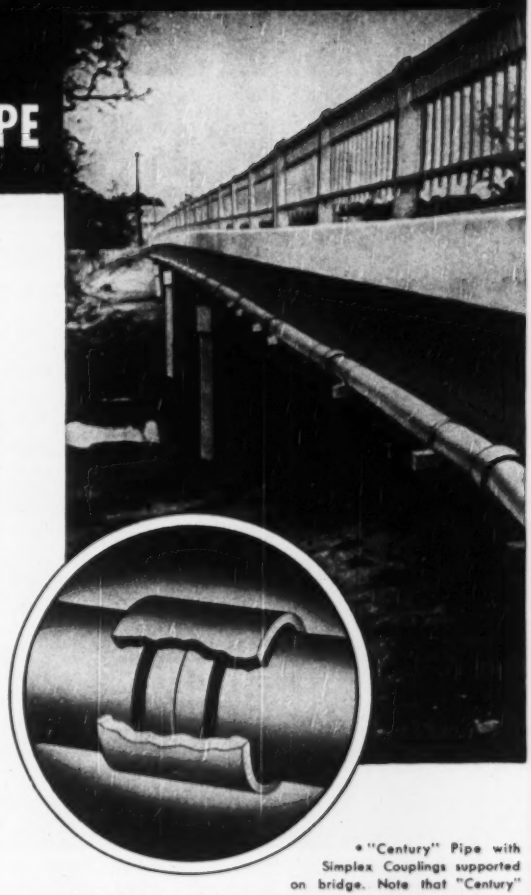
Hundreds of communities the country over have discovered that they save dollars by the mile with water mains of "Century" Asbestos-Cement Pipe. This modern main cuts over-all water system costs three ways:

First, the initial cost of the pipe is moderate. And, because "Century" Pipe is so light-weight and strong, it is easy and economical to haul and to handle.

Next, "Century" Pipe costs less to install—no heavy laying equipment is needed. And the "Century" Simplex Couplings* let you lay curves of as much as 5° deflection per pipe length quickly and easily.

Finally, you get real, long-term system economy. "Century" Pipe is made of two practically indestructible materials—asbestos fiber and Portland cement. It cannot tuberculate—inside diameter, initial flow capacity, and pumping costs remain constant. Being non-metallic, "Century" Pipe defies electrolysis, is highly resistant to soil corrosion, needs no protective coating. You can count on "Century" Asbestos-Cement Pipe to last longer with a minimum of maintenance!

• *Before you specify or buy any water main pipe, it will pay you to investigate "Century" Asbestos-Cement Pipe. Write us for complete information.*



• "Century" Pipe with Simplex Couplings supported on bridge. Note that "Century" Pipe needs no protective painting—external corrosion factors can't affect it either in the ground or in open air. Insert photo is cut-away of assembled Simplex Coupling.

***WHAT YOU SHOULD KNOW ABOUT SIMPLEX COUPLINGS**

Made of the same materials as "Century" Pipe—asbestos fiber and Portland cement.

Only three parts—an asbestos-cement sleeve, and two specially compounded round rubber gaskets. Couplings are assembled quickly and easily.

"Century" Simplex Couplings give you a combination of immediately and permanently tight joints that are, at the same time, flexible and vibration resistant.

In the photo above, you see light-weight "Century" Pipe supported over a creek bed. The Simplex Couplings every 13 ft. act as expansion joints—actually absorb the bridge vibration of passing traffic.

Nature made Asbestos . . . Keasbey & Mattison has made it serve mankind since 1873

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TIME TO

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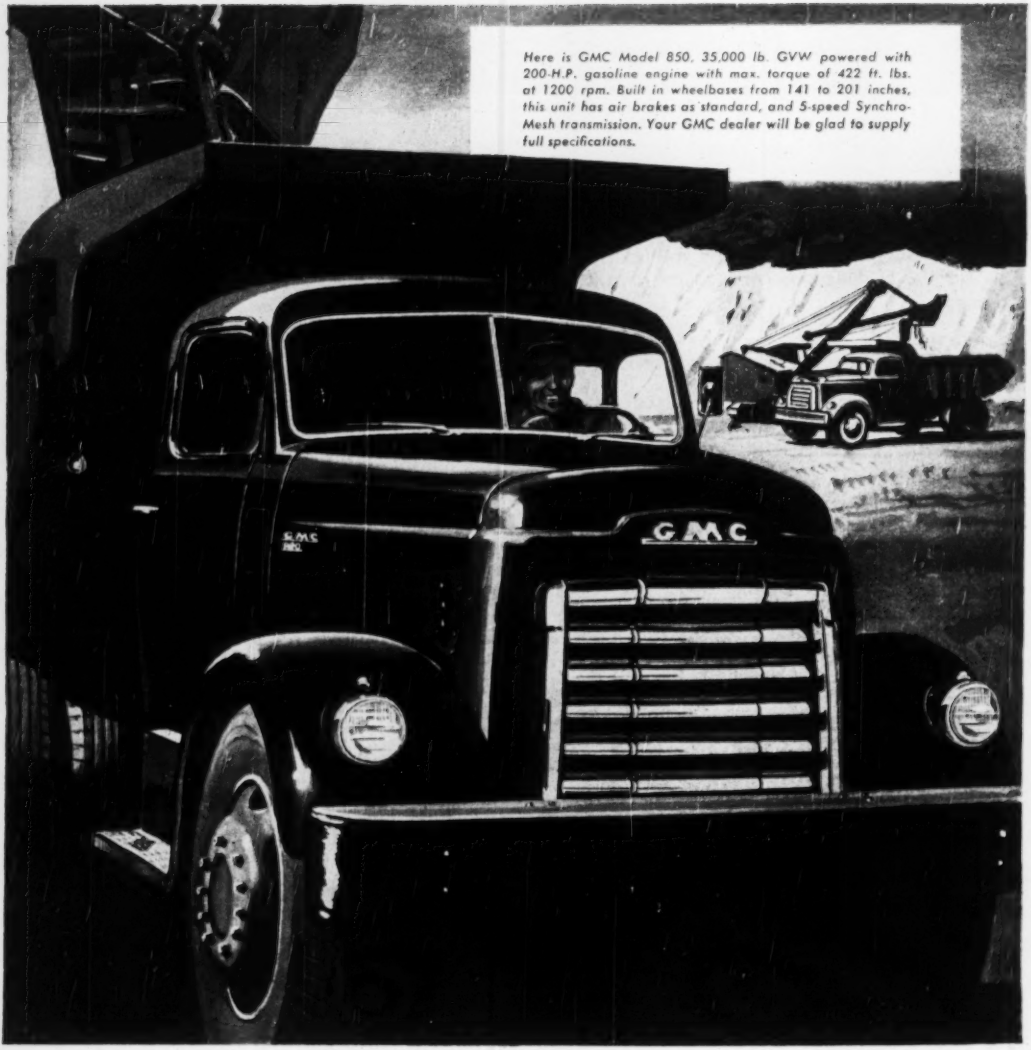

Here is GMC Model 850, 35,000 lb. GVW powered with 200-H.P. gasoline engine with max. torque of 422 ft. lbs. at 1200 rpm. Built in wheelbases from 141 to 201 inches, this unit has air brakes as standard, and 5-speed Synchro-Mesh transmission. Your GMC dealer will be glad to supply full specifications.

LOOK AHEAD

heavy-duty trucks

Now more than ever dependability is extremely vital in heavy trucks and equipment. You want to *know* they will keep going—for years, if need be.

You get that kind of durability – through more years of use—in GMC's. It is this dependable operation, along with top performance at lowest transportation cost, that explains why more heavy truck users are buying GMC's now than ever before!

Built for Longer, Harder Work

These massive GMC's are designed and built to have added strength and long life in every part—especially important in the construction field. Check over the list of features that make every GMC outstanding for quality—unequaled by any other make.

Size and Power for Any Demand

There are husky giants for on- and off-the-road work, ranging up to 90,000 lbs. gross weight as a tractor, and 55,000 lbs. gross weight as a truck. You have a choice of tough, lusty valve-in-head gasoline engines, or the famed GM 2-cycle Diesels, with power up to 200 H.P. The right wheelbase and gear combination is available to handle your job.

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Men would rather work GMC's, with the "cushion-mounted," all-welded, "Six-Footer" Cab that stays comfortable. Clash-proof transmission and recirculating ball-bearing steering gear make GMC's the easiest trucks to handle.

* * * *

If you want a REAL truck—that will see you through—check with your GMC dealer. He'll be glad to show you how fully GMC covers the hauling field.

GMC Truck & Coach Division of General Motors

GMC

GASOLINE & DIESEL TRUCKS

FROM ½ TO 20 TONS

GM

GENERAL MOTORS

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Only GMC's Bring You All These Features

GMC Heavy-Duty Valve-in-Head Gasoline Engines. Built to deliver top power and to last longer. All GMC gas engines, from 96 to 200 H.P., have TOCCO-hardened crankshafts and Moraine airplane-type bearings, top efficiency lubrication, cooling, and carburetion systems.

GM 2-Cycle Diesel. Exclusive Power-on-Every-Downstroke Design increases power and smoothness with reduced weight and bulk. Unit Injectors eliminate high-pressure fuel lines, pumps, and manifolds.

SYNCHRO-MESH 5-Speed Transmissions, for clash-proof shifting.

Recirculating **BALL-BEARING** Steering reduces driver effort and fatigue.

MASSIVE MODERN FRONT ENDS, with Frame-Mounted Bumper Stock Grilles. Radiator core is rubber-insulated, shielded in surrounding steel shell; fenders and grille separately removable.

ALL-WELDED, ONE-PIECE "SIX-FOOTER" CABS.

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Announcing THE New UNIT 614 ½ Yd.

a HEAVIER and BETTER machine ...at no increase in price!

Sturdy, box section side members . . . Cast steel hinges . . . Single, square structural steel dipper stick . . . Cast steel saddle block with adjustable and replaceable wear plates . . . Direct UNIT chain-crowd mechanism — eliminates cables, racks, and pinions . . . Special equalizer insures even pull on both strands of the double crowd-chain.

Twin hook-rollers equalized and mounted on front and rear of rotating frame. Quickly adjusted by means of eccentric pin. 4 upper-load rollers and 4 hook-rollers — all conical shaped and made of drop-forged steel.

The completely new UNIT 614 — ½ yard offers the same rugged construction usually found only in machines of greater capacity. Twenty-five years of engineering skill and craftsmanship have gone into the production of this model — an outstanding product resulting from specializing in sizes under one yard. Compare its construction features and design with any ½ yard machine in the market today. We are confident that your judgment will favor the UNIT 614.

Get the facts — Write today for literature.

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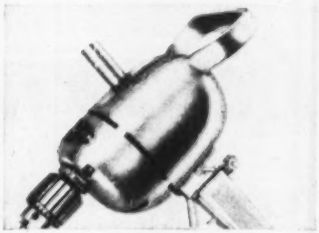
MANUFACTURERS OF THE "CEMENT GUN"

ical torque-converter drive and independently operating ammonia-fume exhaust fan are features of the Model D. Both cut sheets and roll stock to 42 in. widths can be handled. Printer has a variable speed from 4 in. to 5 ft/min.—PECK & HARVEY, DEPT. ENR, 5736 NORTH WESTERN AVE., CHICAGO 45, ILL.



Half-Inch Electric Drill

Standard-duty ½-in. electric drill has a built-in toggle-type reversing switch. Weighing 8¼ lb, its capacity is ½ in. in metal, and 1 in. in wood. The universal ac/dc 115-v motor develops 550-rpm no-load speed.—CUMMINS BUSINESS MACHINES CORP., 4740 RAVENSWOOD AVE., CHICAGO 40, ILL.

New Product Briefs

Hardfacing electrode deposits a bead with a Rockwell C hardness of 63-68. EutecTrode 10 is adapted for hardfacing roller cams, pulverizing rolls, and other conditions requiring high resistance to abrasion. Maker: Eutectic Welding Alloys Corp., New York 13, N. Y.

Electrimatic choke is designed to provide correct choking at all temperatures. It will fit most carburetors using automatic chokes, and is completely independent of piston operation. Maker: Pierce Governor Co., Inc., Anderson, Ind.

Ultra-violet water purifier produces safe, clean drinking water at a rate of 400 gph. It uses no chemicals, and is said to add no taste or odor to the water. Maker: Sepco Corp., Pottstown, Pa.

Steel supporting column is available in two types. One has a fixed length (6½, 7, 7½, or 8 ft); the second is an adjustable jack-type model (ranges from 9 in. to 9 ft 7 in.). Maker: John Shoub & Son, Pittsburgh 12, Pa.

Valve-seat insert is available in sizes for all internal combustion engines. It is said to be free from checking and burning, and to not fatigue or loosen in the block. Maker: Martin Wells, Inc., Los Angeles 1, Calif.

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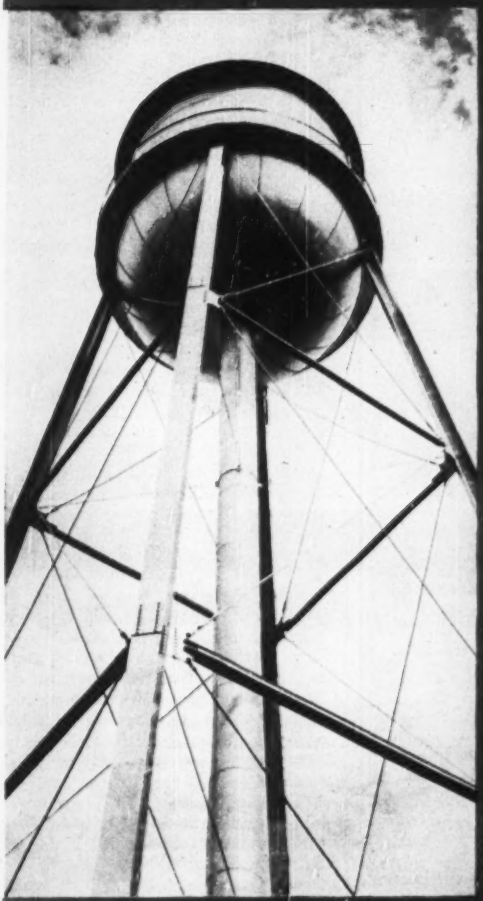
PRICE *Never* Padded . . .
On Steel Plate Construction



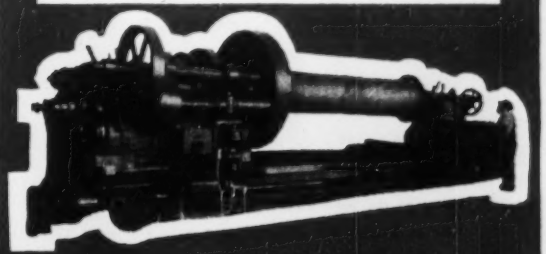
Many Posey installations are actually made with a guarantee that equipment performance will measure up to fixed requirements. Yet often these same installations are fabricated at price *savings* for users.

To eliminate needless costs, Posey's engineers draw upon "case history" files dating back to 1910. Production is supervised by top-flight executives with the authority to cut through red tape . . . by-pass routine. Above all — Posey has the *plant capacity* needed for smooth scheduling of production . . . the modern equipment required by today's construction demands.

A recently published 12-page bulletin tells in picture form, the story of Posey Iron Works' facilities and products. A study of it may show you ways to lower your steel plate construction costs. Write today for your free copy — without obligation.

Posey's 16 ft. Lathe

16' length x 94" diameter lathe gives Posey Iron Works an edge on big jobs requiring lathework. This equipment stands in the South Plant's special erection shop.



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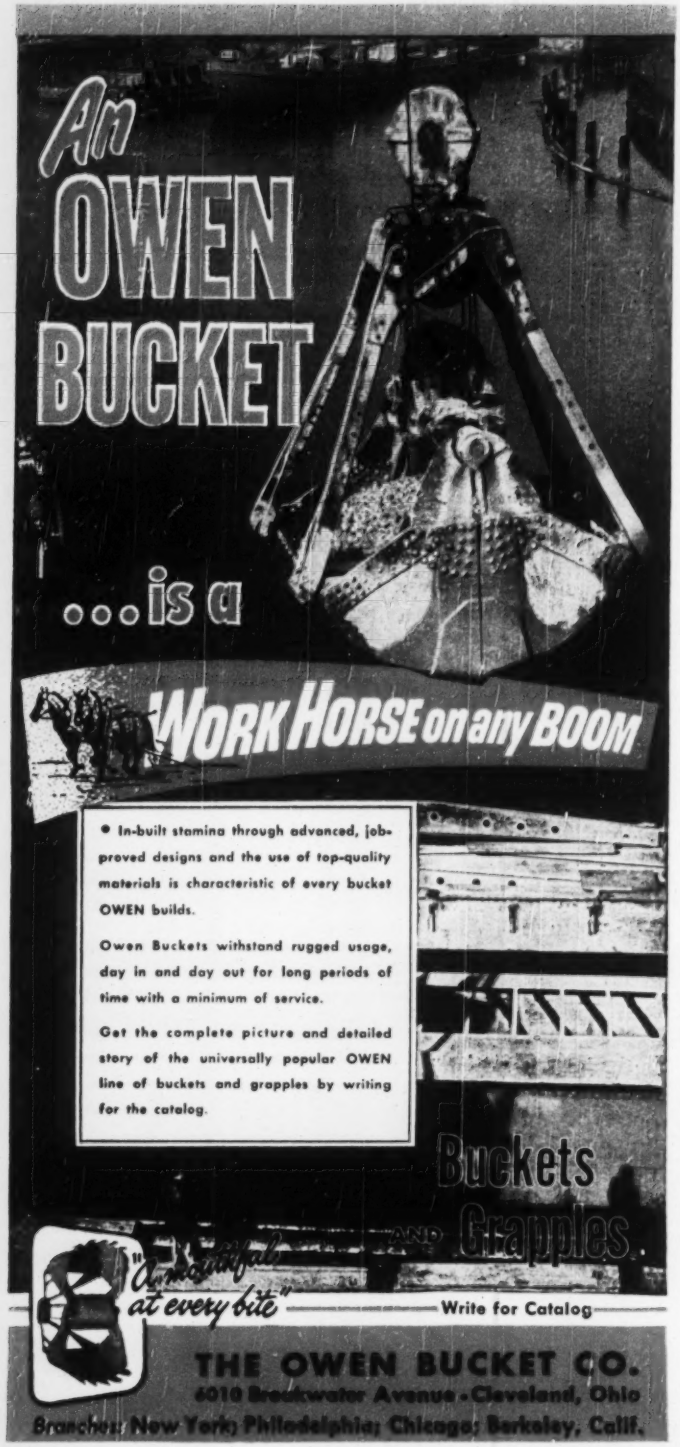
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Manufacturers' Publications

Asphalt Plants—Complete line of asphalt plants and related equipment is described in a new Cummer catalog. Of the loose-leaf type, it contains a history of the Cummer company, in addition to describing individual units. Items listed include: Tower units with combination two-fire dryer; two-fire combination dryer and cooler; diesel-powered plant with a 60-ton-per-hour capacity; internal fire dryer with a 70 to 80-ton-per-hour hot-mix capacity; and other typical installations. Accessories and components described in detail include: Mechanical feeder, steam-jacketed asphalt bucket, mixer tooth, vibrating screen, and mixers. Each unit is illustrated, accompanied by text describing its principal features. —The F. D. Cummer & Son Co., Dept M, B. F. Keith Bldg., Cleveland 15, Ohio.

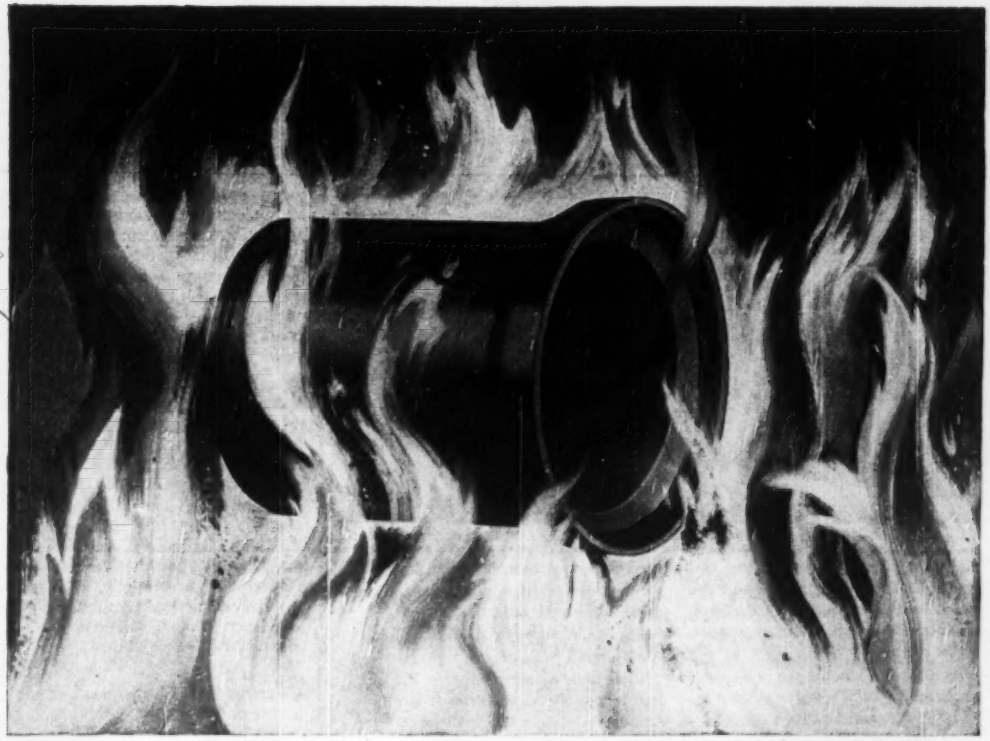
Portable Hydraulic Dredge—Bulletin 804 describes the Little Dragon 8-in. hydraulic pipe-line dredge. It features a description of the extreme portability and versatility claimed by the manufacturer. The Little Dragon is said to be capable of digging to depths of 20 ft below the surface, and has a rated output of 50 to 150 cu yd per hr.—Ellicott Machine Corp., 1611 Bush St., Baltimore, Md.

Wellpoint System—Principles and practices in the use of wellpoint systems are described in a handbook now available. This handbook contains information on how a wellpoint system functions and describes methods of planning, layout, installation, operation, and removal of the system. The manual is pocket-size, 102 pp in length, and contains 59 illustrations and diagram. Price is $1.50.—Griffin Wellpoint Corp., 881 E. 141st St., New York 54, N. Y.

Export Negotiations—Booklet tells how to negotiate export documents. It features a description of the entire line of Onan electrical products available to the export market. Explicit instructions for determining terms of payment and establishing letters of credit are listed in an easy-to-follow manner. The booklet is designed to help eliminate unnecessary correspondence and delay.—D. W. Onan & Sons, Inc., Royalston Ave., Minneapolis, Minn.

Aluminum Rolling Scaffolds—Illustrated bulletin on aluminum rolling

(Continued on page 118)



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VITRIFICATION — the heat-bonding process that makes Clay Pipe tough, corrosion-proof, and everlasting — takes place at temperatures exceeding 2000° F. Under carefully controlled firing, the minute particles of rock that have been formed into Clay through centuries of nature's purification are fused *permanently* together. Vitrified Clay Pipe needs no coating to protect it from the corrosive action of sewage, ground waters, soils, or industrial waste. It's chemically inert, completely safe from the acid attack that destroys so many materials. No other pipe offers all the *necessary* advantages of Vitrified Clay Pipe. That's why it's universally preferred for sewerage and drainage installations.

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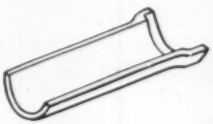
STANDARD-STRENGTH CLAY PIPE



CHANNEL CLAY PIPE

CLAY PIPE FITTINGS

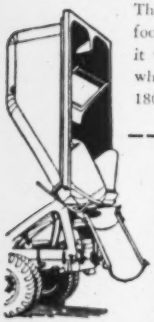
The above photo shows one reason why Dumpcretes haul more concrete in a day—and haul it cheaper. Here the *high-discharge* Dumpcrete is dumping into a bucket without a special ramp. It will do just as well into buggies or hoppers.

The Dumpcrete's long 13-foot chute saves time too—it will place concrete anywhere you want it in a big 180 degree arc.

The Dumpcrete charges fast at the mixing plant because of its big open top. And on the way to the pour, its light weight makes it fast and easy to handle over rough ground.

This simple concrete body costs less to buy, to run and to maintain. It is economical on big jobs and small jobs.

Order a trial Dumpcrete now. Prove to yourself how much it saves. Phone or write today.



The lower cost Dumpcrete is lightweight, watertight, with 13-foot chute, controlled higher discharge and lower center of gravity. Hauls sand, gravel and coal too. Available in 2, 3, and 4 yard sizes.

Please send information on low cost Dumpcrete.

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scaffolds features photographs showing scaffolds in actual use. Complete descriptions of the pre-fabricated construction and uses of this type of scaffolding are given. Specifications are listed in detail.—PATENT SCAFFOLDING CO., INC., 38-21 TWELFTH ST., LONG ISLAND CITY 1, N. Y.

Guide to Steel Selection—Four-page bulletin lists popular grades of hot-rolled and cold-finished carbon and alloy steel bars, giving principal characteristics, mechanical properties, and uses. It is intended to serve as a guide to the selection of the most suitable, as well as the most economical, qualities of bar steel.—JOSEPH T. RYERSON & SON, INC., P. O. Box 8000-A, CHICAGO 80, ILL.

Radiant-Heating Control – Bulletin ST-600 contains information on the Sarcotherm Type AO compensating outdoor control for hot water and radiant-heating systems. It describes the operation of this instrument designed to meet the requirements of the small home field, as well as other applications. The AO features a convenient adjustment that allows selection of any desired temperature range.—SARCOTHERM CONTROLS INC., 350 FIFTH AVE., NEW YORK 1, N. Y.

Government Procurement—Brochure serves as an aid for obtaining government business. It is replete with up-to-the-minute information relative to government purchasing. All aspects of the procurement picture are said to be thoroughly covered in this 16-pager. It is divided into several sections, each dealing with a different aspect of the subject matter.—TRILANE ASSOCIATES, INC., 1 HUDSON ST., NEW YORK 13, N. Y.

Hand-Held Rock Drills – Bulletin H-1200-B38 describes three models of hand-held rock drills. The WS-45 has a 2⅜-in. cylinder bore, 52-lb weight, and 19-in. length; the WS-55 has a 2⅝-in. cylinder bore, 62¼-lb weight, and 20½-in. length; the WS-30 has a 3-in. bore, 83-lb weight, and is 23¼-in. in length. Design features are described and screw-feed mountings specified in the bulletin.—WORTHINGTON PUMP AND MACHINERY CORP., HARRISON, N. J.

Wire Rope—Condensed and combined information on improved plow-steel wire ropes is contained in Monarch White Strand Bulletin 50-25. Designed as a quick reference, it contains all information pertaining to this type of wire rope. All sizes and construction classification are combined in

a large table. The catalog contains a description of the various types of wire-rope construction.—MACWHYTE CO., KENOSHA, WIS.

Exterior Uses of Panelwood—Masonite ¼-in. Panelwood, designed primarily for indoor use, has certain protected exterior uses. These are detailed in Technical Bulletin A-222. They include applications as soffits or planciers on the underside of eaves, and for porch, breezeway, and car-port ceilings. Directions are given for conditioning the panels before application. Mailing instructions are included.—MASONITE CORP., SALES ENGINEERING DEPT., 111 W. WASHINGTON ST., CHICAGO 2, ILL.

Metal Studs and Lath—Assemblies of prefabricated metal studs and metal lath designed to speed up construction of building partitions are featured in the August issue of Metal Lath News. In all, eight combinations of steel studs and floor and ceiling track systems are shown for typical installations of hollow and double metal-lath partitions. The publication lists the recommended applications and advantages of each type of installation.—METAL LATH MANUFACTURERS ASSN., 636 ENGINEERS BLDG., CLEVELAND 13, OHIO.

"At War With Water"—Booklet deals with the subject of destructive moisture and the various ways in which it attacks houses. Entitled "How to Win Your War Against Water", it contains 12 pages of information on how water affects certain surfaces, and how to protect against these effects. It features a description of a three-point system of protection. — NATIONAL PAINT, VARNISH & LACQUER ASSN., 1500 RHODE ISLAND AVE. N.W., WASHINGTON 5, D. C.

Pipe Fittings—Bulletin 104 lists complete line of Kennedy cast iron, malleable, and bronze pipe fittings. It covers recent additions including cast-iron screwed, flanged, sprinkler, and extra-heavy malleable fittings. — THE KENNEDY VALVE MANUFACTURING CO., ELMIRA, N. Y.

Power Shovels; Cranes—Bulletins now available discuss Thew-Lorain power shovels and cranes. One bulletin describes the Lorain-50 series—a 1-yd machine that features a hydraulic coupling as standard equipment. The other bulletin discusses the Lorain-TL series—machines in the ½ and ¾-yd classes that may be mounted on a wide variety of crawler and rubber-tire mountings.—THE THEW SHOVEL CO., LORAIN, OHIO.

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Road-Fund Diversion : A dying Giant?

Robbing Peter to pay Paul, 24 states and the District of Columbia diverted $166,111,000 of state highway use taxes into non-highway funds during 1949.

Figures released recently by the Bureau of Public Roads show an improvement over 1948. In that year diversion was indulged in by 27 states to the tune of $189,370,000. Five states abandoned the practice in 1949, with two other adopting it. (The table below is taken from a National Highway Users Conference compilation.)

Ten states that sidetracked highway funds also raised gasoline tax rates during 1949. In two of these states—Georgia and Washington—the amounts diverted were much greater than the revenue brought in by the higher tax.

• **Fuel taxes rise**—Georgia was the glaring example. After puffing gas taxes from six to seven cents per gallon, bringing in revenue amounting to $5,967,000, the state lopped off $18,030,000 (or 36.2%) of its highway tax receipts for its general and educational funds.

Percentagewise, not dollarwise, Rhode Island leads the nation in the diversion of highway funds, with 46.2% of its highway-user income switched to other channels.

Other states spending more than 10% of their take from motorists for budget items other than roadways include: Florida (36.8%); Georgia (36.2%); Texas (19.3%); New York (17.4%); California and the District of Columbia (15%); and Washington (14.4%).

Popular among the states in the thirties, diversion grew by leaps and bounds, plunging to all-time highs in 1941 and 1942.

During World War II gas rationing, eventually brought fuel-tax receipts down 28%, resulting in a 56% decline in money sliced off for other purposes. Postwar receipts from fuel taxes have staged a recovery 41% beyond the levels of 1941, while diversions in 1949 declined to a level 23% below 1941's all-time high.

HIGHWAY FUND DIVERSION BY STATES—Key years since 1924

(Thousands of Dollars)

(1929, prosperity's peak; 1933, the Great Depression; 1936, recovery sets in; 1939, war in Europe; 1941, war with Japan; 1946-1949, the postwar era)

State	1929	1933	Sub-total 1924-1933	1936	1939	1941	1946	1947	1948	1949	Sub Total 1934-1949	Total Diversion 1924-1949
Alabama			10	725	733	1,022	1,174	1,344	1,492	1,956	15,963	15,973
Arizona		148	148	7	2						520	668
Arkansas		316	316	77		94	55	45	194	216	1,130	1,446
California			32	5,427	12,289	17,724	9,502	31,618	33,142	38,977	245,687	245,719
Colorado		538	552								3,779	4,331
Connecticut				123							331	331
Delaware				17	1,559	220	67	1,042			5,857	5,857
Dist. of Col.	580		3,650	932	220	268	450	466	1,242	1,688	9,977	13,627
Florida	2,234	6,657	26,995	7,802	10,802	12,535	17,998	20,752	23,141	26,205	213,173	239,268
Georgia	1,457	2,495	16,982	2,901	7,472	6,410	5,829	13,665		18,030	87,233	103,315
Idaho			29									29
Illinois	35	3,765	3,878	7,412	6,868	4,919		376		440	74,659	78,537
Indiana		1,376	1,376	3,356	1,629	1,840	587	632	705	765	23,476	24,852
Iowa		355	1,105									1,105
Kansas		13	13									13
Kentucky				799	1,487	2,092					12,570	12,570
Louisiana		1,631	5,326	3,487	8,217	7,431	7,245	3,189	4,301		73,750	79,076
Maine								12	1		155	155
Maryland		75	300	538	644	1,688	1,620				9,462	9,762
Massachusetts		8,212	8,212	6,126	1,880	934		67	81		44,410	52,622
Michigan	4	342	455	342	151						1,755	2,210
Minnesota	56	78	304	194	163	209	239	328	93	368	2,801	3,105
Mississippi		2	2					23			289	291
Missouri				66	79	116					688	688
Montana			802				19		24	13	181	983
Nebraska				2,238	1,739	2,455	3,078	2,244		238	26,570	26,570
Nevada												none
New Hampshire			471									471
New Jersey	90	6,211	14,870	13,275	11,582	11,709	617	660	660	660	126,928	141,798
New Mexico		194	862	180	491	678	739	901	556	859	9,353	10,215
New York	4,662	35,201	104,365	59,790	60,470	64,385		36,148	71,444	27,653	705,008	809,373
North Carolina				2,432	1,928	1,411	1,674	1,863	2,010	2,160	23,934	23,934
North Dakota		1,100	2,293	5	20	6					2,075	4,468
Ohio		4,980	4,980	11,470	13,521	15,438	9,160	7,216			150,654	155,643
Oklahoma		2,360	4,729	3,882	150	2,779		6,027		1,311	49,140	53,869
Oregon				238		155		274	195	433	1,633	1,633
Pennsylvania		4,137	14,234	12,607	15,153	16,327	28	33	19	29	135,761	149,995
Rhode Island		1,336	1,336	1,995	4,202	4,604	3,371	4,810	4,023	4,795	50,830	52,166
South Carolina			962	154	176	366	677	747	822	896	6,565	7,527
South Dakota		1,405	1,405	2,131	499	172	91	88	120	52	9,941	11,346
Tennessee			1,729	3,654	3,943	7,479	6,229	7,418	5,084		79,709	81,438
Texas	5,579	7,069	46,263	9,307	11,956	14,444	19,442	24,489	28,961	26,265	232,424	278,687
Utah				45	49	10	647	501			2,956	2,956
Vermont					29	27	23	29	27	10	331	331
Virginia				30	13		77	73	132		654	654
Washington		869	869	942	999	1,393			6,092	7,864	23,913	24,782
West Virginia			317							2	2	319
Wisconsin		1,094	3,949	4,355	4,980	12,480	3,827	3,935	4,097	4,228	104,723	108,672
Wyoming												none
TOTAL	14,697	91,577	272,430	169,311	181,654	215,039	94,378	170,518	189,370	166,111	2,571,040	2,843,470

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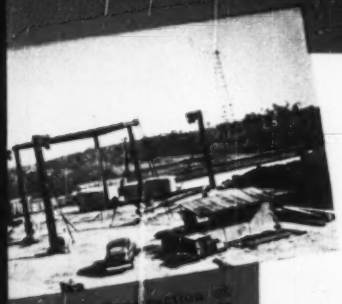
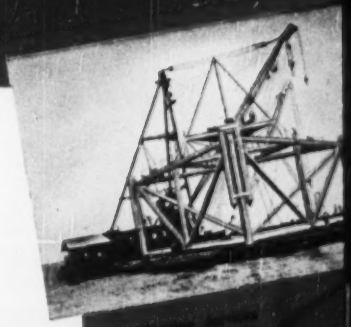
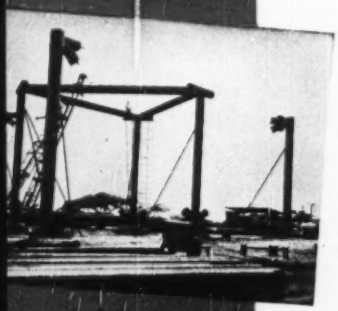
FOR VENEZUELAN OIL CONCESSIONS, LTD.

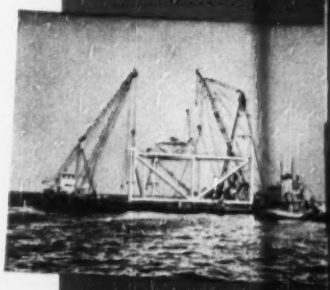




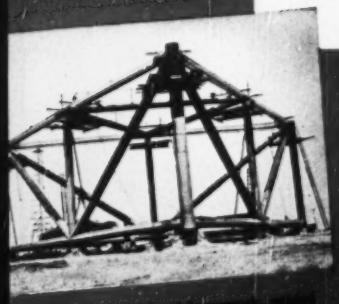
The Problem: 250-foot Gow soil borings, accurately spotted five to ten miles offshore in the deep waters of Lake Maracaibo, Venezuela. The Project: pile foundations for future oil-well derricks. Special Hazard: 70-mile-an-hour "chubascos," violent squalls that would wreck temporary platforms.

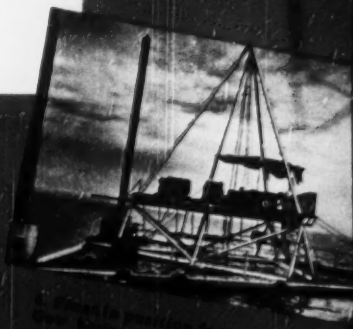
The Solution: Raymond engineers designed a triangular *floating* platform of 22" steel pipe, welded and watertight. The three corner members were left open for 120-foot-long anchor spuds. Assembled on shore from steelwork fabricated in New York, the 60-ton float was skidded onto two barges and towed 32 miles to the first boring location where floating derricks launched it. Spuds and deck equipment were placed later, including winch-controlled anchors at each corner to help in spotting the float and holding it steady during boring operations.





The Moral: When the problem is tough, the answer must still be *right*. That's when it pays to have a resourceful, experienced organization on the job . . . like Raymond!





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